



SANITARY AND PHYTOSANITARY STANDARDS

Implications for Trade and Development in Kenya

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the Degree of Doctor of Philosophy in Natural Resources*

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DECLARATION

I certify that this work has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others.

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DEDICATION

To my parents Amos and Janerose Edewa- this is a product of decades of your sacrifice.

To my wife Everlinne, and our children Precious, Prudence and Christian. You were a true motivation during my study.

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ABSTRACT

For many years Kenya has invested in compliance infrastructure for sanitary and phytosanitary (SPS) standards with the primary objective of assisting agricultural producers and traders meet SPS conditions of trading partners and to enhance the country's ability to compete in global markets without excluding smallholder producers. However, these efforts have not proportionately reduced incidences of rejections and complaints on Kenya's agro-food exports, nor responded effectively to emerging SPS risks. Such incidences have highlighted likely weaknesses in the country's SPS compliance system.

The purpose of this study was to assess the ability of Kenya's Sanitary and Phytosanitary (SPS) system to support safe trade in agricultural and food products. A range of social science methods and tools were used to assess the ability of the private sector to produce agricultural and food products that comply with SPS requirements of key trading partners the one hand, and domestic SPS compliance support institutions on the other. Overall, significant investments have been made in Kenya's SPS compliance system but its linkages with the private sector regional and international frameworks are inadequate. National SPS policy frameworks exist, but have received limited priority in national development and trade agenda. In addition, although private sector is implementing SPS requirements, smallholders are increasingly being excluded from global value chains, and regulatory controls are more reactive rather than risk-based. As a consequence non-compliance with SPS requirements continues to be a major hindrance for the country's key agro-food exports and regional integration efforts. Efforts should be directed towards implementation of regional SPS frameworks and compliance along agro-food value chains without excluding participation of smallholder producers.

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ACRONYMS AND ABBREVIATIONS

AU	African Union
AUC	African Union Commission
AU-IBAR	African Union Inter-African Bureau for Animal Resources
AU/IAPSC	African Union Inter-African Phytosanitary Council
CA	Competent Authority
CAADP	Comprehensive Africa Agriculture Development Programme
CAC	Codex Alimentarius Commission (better known as Codex)
CAP	Chapter
CCAFRICA	Codex Coordinating Committee for Africa
COMESA	Common Market for Eastern and Southern Africa
DREA	Department of Rural Economy and Agriculture
DVS	Department of Veterinary Services
EAC	East African Community
EU	European Union
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
FTA	Free Trade Area
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
HACCP	Hazard Analysis and Critical Control Point
HCD	Horticultural Crops Directorate
HCDA	Horticultural Crops Development Authority
ICIPE	International Centre for Insect Physiology and Ecology
IGAD	Inter-Governmental Authority on Development
IICA	Inter-American Institute for Cooperation on Agriculture

INFOSAN	International Food Safety Authorities Network
IPPC	International Plant Protection Convention
IPM	Integrated Pest Management
ISO	International Organization for Standardization
ISPM	International Standard for Phytosanitary Measures
ISSO	International Standard Setting Organization
ITO	International Trade Organization
KALRO	Kenya Agricultural and Livestock Research Organization
KEBS	Kenya Bureau of Standards
KEPHIS	Kenya Plant Health Inspectorate Service
KES	Kenya Shilling
KNBS	Kenya National Bureau of Statistics
LMO	Living Modified Organism
MOA	Ministry of Agriculture
MOFA	Ministry of Foreign Affairs
MOFD	Ministry of Fisheries Development
MOLD	Ministry of Livestock Development
MOPHS	Ministry of Public Health and Sanitation
MOFAIT	Ministry of Foreign Affairs and International Trade
NCC	National Codex Committee
NCLR	National Council for Law Reporting
NCST	National Council for Science and Technology
NCWTO	National Committee on World Trade Organization Matters
NEP	National Enquiry Point
NIE	New Institutional Economics
NNA	National Notification Authority

NPHL	National Public Health Laboratories
NPPO	National Plant Protection Organization
NTB	Non-Tariff Barrier
NTM	Non-Tariff Measure
NVA	National Veterinary Authority
OIE	Office International des Epizooties (World Animal Health Organisation)
PCE	Phytosanitary Capacity Evaluation
PCPB	Pest Control Products Board
PRA	Pest Risk Analysis
RC	Reference Centre
REC	Regional Economic Community
RTA	Regional Trade Agreement
SADC	Southern African Development Community
SIRC	Standards Information Resource Centre
SIT	Sterile Insect Technique
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
UNIDO	United Nations Industrial Development Organization
USA	United States of America
USD	United States Dollar
WHO	World Health Organization
WTO	World Trade Organization

CHAPTER 1 INTRODUCTION

1.1 Background

1.1.1 Understanding Standards

Our daily living relies on standards which in many cases have become routines and norms of society. They affect our social welfare needs and define the path of development and trade for many economies. Standards have been present throughout much of our history, and are the basis of religious books that shape majority of political, legal and socio-economic systems in our world today. In fact, in biblical times, the lack of a common (standardized) language wreaked havoc at the Tower of Babel, and many sanitary and phytosanitary procedures are described in Scripture. Standards permeate all business activities and even the day-to-day life of the man on the street. Yet not much is known in practice on how standards work and how they impact our individual lives, businesses and nations.

The Oxford English Dictionary gives two definitions of relevance to the subject of trade and development. Firstly, it defines a standard as “a (required or agreed) level of quality or attainment”. It also defines a standard as “something used as a measure, norm, or model in comparative evaluations”. Therefore, a requirement to use anti-pest sprays on imported fruit, or that all susceptible animals be vaccinated against rabies, may fall under the first definition. However, a requirement to use non-toxic material for packaging of food may fall under both definitions. For an economic analysis of standards, the difference between norms referring to characteristics that can be measured on an objective scale and norms referring to other characteristics that cannot be measured is

quite important (WTO, 2005). In fact, the International Organisation for Standardisation (ISO) defines a standard as a document which provides, inter alia, requirements, rules, and guidelines, for a process, product or service. These requirements are sometimes complemented by a description of the process, products or services and are the result of a consensus approved by a recognized body (UNIDO, 2006a).

While there is a wide literature on economic theory of international standards, and their presumed effects, not much is known about how international standards work in practice. Standards play an important role in the manufacturing and service industries and in the sale of their products in national and international markets. One of the characteristics of modern manufacturing is that enterprises do not themselves have to produce all the parts and components they need, but buy these from ancillary industries, often situated in far-off countries. The standardization of parts and components gives enterprises a wider choice of lower-cost supplies. It also enables them to maintain inventories at comparatively low levels and gives them the flexibility to use substitute components on the assembly line. Standards thus help industries to cut costs and improve productive efficiency.

Standards are indispensable for the international marketing of products as they convey consistent and understandable information to the buyer. A foreign buyer who knows the standard to which a product is produced has an insight into its specifications and is able to assess its quality. Standards thus help reduce disputes over specifications and the quality of goods (and services) exported and imported. Standards have come to be crucial elements facilitating transactions and trade both within and between countries, because

they stipulate what can or cannot be exchanged and define the safety procedures that must be followed for exchange to take place (Jaffee, 2006).

Standards are also used by governments to promote its social goals. Government agencies at the national, State and local levels lay down thousands of regulatory standards to protect the health and ensure the safety of the population, and to conserve the environment. Such regulations cover both product characteristics and the materials and processes used in producing them. A wide range of consumer goods – food, drugs, vehicles, electrical appliances, safety equipment – face many types of requirements, from design, to ingredients, to the process of manufacture or production, and to performance.

Standards also increase welfare by reducing negative environmental externalities. An important area where governments around the world have increased regulatory activity in recent decades is in relation to the environment. Government intervention aims in this case to create incentives for consumers and producers to take into account the effects of their actions on the environment. Compliance with standards imposed by government is obligatory.

1.1.2 Type of Standards

Standards may be classified simply as public or private, mandatory or voluntary, and they may focus on products or processes. Standards can be classified into private and public standards, although the line separating these two is not always well demarcated. Many standards adopted by governments have their origin in industry. However, the distinction between public and private standards matters when considering in whose interests

standards might be set. In the case of public standards, it is assumed that the interests of all actors in society are taken into account, while in the case of privately set standards, the standard is chosen to maximize firms' profits. *Table 1-1* below provides a summary of classification of standards.

Table 1-1: Classification of Standards

Classification	Voluntary	Mandatory
Private	Private Voluntary Standards	Legally-mandated Private Standards
Public	Public Voluntary Standards	Regulations

Private standards are set (created) by commercial or non-commercial private entities, including firms, industry organisations, or nongovernmental organisations. In turn, the extent to which private standards are voluntary depends on the form and level of power wielded by the entities adopting those standards; that is the nature of the entities requiring the standard be implemented by another entity (Brunsson and Jacobsson, 2000). Private standards can be adopted by non-state (private) actors, and may become *de facto* mandatory in a commercial sense through adoption by dominant market actors. There is, however, no legal penalty from non-compliance with private voluntary standards. Private standards may also be adopted by state actors and invested with statutory power. In this case, compliance is mandatory, and we refer to these legally mandated private standards. This process is seen, for example, with the referencing of ISO 9000 in European Union directives for telecommunications and electronic products.

Private standards are by definition voluntary, but public standards can be either voluntary or mandatory. In practice, the distinction between voluntary and mandatory standards may often become blurred. For instance, from the perspective of suppliers, procurement

specifications set by major manufacturers are mandatory for doing business, as are government procurement standards. In the case of mandatory standards, only standardized products are allowed to circulate in the market. Where standards are voluntary, non-conforming products can also be supplied.

Both voluntary and mandatory standards may focus on products or processes. Process standards pin down the characteristics of a production process. Processes are typically not traded. But the goods produced through the process may be traded, and so process standards are relevant to the multilateral trading system under the World Trade Organisation (WTO). This "indirect" relevance of process standards explains to a large extent why multilateral trade law, which traditionally deals with goods and not their process of production, finds it difficult to deal with process standards.

In practice, the distinction between voluntary and mandatory standards may often become blurred. For instance, from the perspective of suppliers, procurement specifications set by major manufacturers are mandatory for doing business, as are government procurement standards. Private standards are by definition voluntary, but public standards can be either voluntary or mandatory. In the case of mandatory standards, only standardized products are allowed to circulate in the market. Where standards are voluntary, non-conforming products can also be supplied. The most familiar form of public standards is the regulations promulgated by governments that are mandatory within the sphere of competence of the government. However, governments also promote standards that are voluntary. Brunsson and Jacobsson (2000) refer to these as "optional laws". In the food industry, the 'Label Rouge' developed by the French government would be an example.

Under the World Trade Organisation (WTO) terminology, mandatory standards are referred to as technical regulations. Such regulations cover both product characteristics and the materials and processes used in producing them. Countries require imported products to conform to the mandatory standards they have adopted for the protection of the health and safety of their people or for the preservation of their environment. In addition to collecting customs duties on imported goods, countries require that such goods should conform to the mandatory quality, health and safety standards applicable to like products produced domestically. Though such regulations are adopted by countries to attain legitimate policy objectives, they could in practice be used to provide disguised protection to domestic products.

Countries also require the compliance of imported agricultural products with their national sanitary and phytosanitary (SPS) regulations. The primary aim of these regulations is to protect human, animal or plant life or health from pests and diseases that may be brought in by imported agricultural products. Sanitary measures cover all types of regulations whose basic objective is to ensure food safety, or to prevent animal-borne diseases from entering a country. Where the objective of the regulations is to ensure that imported plants or plant materials do not bring into a country plant borne pests, such regulations are referred to as 'phytosanitary measures' (WTO, 2005).

The basic difference between technical regulations and SPS measures arises from the objectives for which they are adopted. In the case of SPS measures, the aim is limited and specific – to protect human, animal and plant life or health by ensuring food safety and preventing animal and plant-borne diseases from entering a country (WTO, 1994a). Where the objective of the regulations is to ensure that imported plants or plant materials

do not bring into a country plant borne pests, such regulations are referred to as ‘phytosanitary measures’ (WTO, 2005). Technical regulations, on the other hand, are imposed for a variety of policy objectives. They include national security requirements, prevention of deceptive practices and protection of the environment. Technical regulations may also be adopted to protect human health or safety, or animal or plant life for objectives other than those for which health and sanitary measures are implemented (WTO, 1994b).

1.1.3 Sanitary and Phytosanitary Risks in Agri-food Trade

There are four categories of risks that governments seek to address by imposing SPS measures on imported agricultural products. Firstly, there are food safety risks that may arise from contamination of food. Contamination of food may occur as a result of presence in food of harmful chemicals and microorganisms which can cause consumer illness. Secondly, SPS risks may be caused by plant and animal-carried diseases. Thirdly, there are risks that emanate from presence of pests and diseases of animals and plants, which may impact negatively on food security and poverty reduction. Fourthly, importing countries may suffer other damage caused by entry, establishment and spread of pests.

Zoonoses are of increasing concern for human health. Approximately 60% of all human diseases are thought to be of zoonotic origin, and up to 75% of newly emerging infectious diseases may be of zoonotic origin. Many of the zoonotic agents causing disease in humans cause little or no obvious clinical disease in their animal hosts, suggesting that as yet unidentified zoonotic diseases may exist that pose a risk to human health. Examples of emerging zoonotic diseases in the past few decades include avian influenza A/H5N1, West Nile fever, Ebola, severe acute respiratory syndrome (SARS), and pandemic

influenza A/H1N1 2009. In addition, a number of well-known and preventable zoonoses continue to occur in many countries, especially in the developing world, where they mostly affect the poorest people (Biswas, et al., 2010; WHO, 2014).

The emergence of zoonotic disease is complex and multifactorial, driven by factors that include evolving ecology, microbial adaptation, human demographics and behaviour, international travel and trade, agricultural practices, technology and industry. In addition to being a public health problem, many of the major zoonotic diseases prevent the efficient production of food of animal origin and create obstacles to international trade in animal products. Addressing zoonotic risk requires multisectoral cooperation and strong partnerships between human and animal surveillance and response systems.

Endemic animal diseases are a daily burden for health and agriculture in some of the world's poorest countries, hampering economic and social development and limiting food availability. The same diseases when introduced to developed countries, which have largely eliminated them, spread rapidly with severe consequences for livestock production, for business, and for the availability and price of food on domestic and international markets. Emerging infectious diseases, including those which are evolving to evade currently available control options (vaccines and antimicrobials), appear to be posing an increasing risk to health. The mechanisms for disease emergence are complex and often poorly understood, but it is likely that the trend for new diseases to emerge will only continue as global movements of people and animals increases and as human behaviours change the environment around us (OIE, 2015).

As global and regional trade volumes continue to expand, there is an increased risk that new pests of plants will be introduced. And, in addition to its growing volume, trade in agricultural products has become increasingly complex. For example, products may be cultivated in one country, processed in another, and repacked in yet another. The responsibility that national plant protection organizations have for the plant health status of exports and imports that they certify as free of pests is further challenged by the increased complexity of supply chains, especially when commodities travel through multiple countries.

These days, trade moves plants and plant products (including those from forestry) across the world at unprecedented rates and volumes. This movement, coupled with the rapid transport of people, can, intentionally or unintentionally; transport pests of plants that have a significant impact on plant resources. For example, a plant imported for landscaping purposes can become invasive and result in major damage to food production systems or the ecological landscape of the importing country. In addition, such pests can move through unexpected pathways as, for example, when seeds of an invasive plant “hitch a ride” on a shipment of plants, other commodities, or the pallets and containers that transport nearly all traded goods (IPPC, 2013b).

Trade is one of the main pathways of Invasive Alien Species (IAS) introductions into new habitats. Increasing travel, trade, and tourism have facilitated intentional and unintentional movement of species beyond natural geographical barriers. Many of these alien species have become invasive. Trade is one of the main pathways through which IAS can be introduced. Intentional introductions of IAS can occur through trade in new plant species and animals, while unintentional introductions are often linked to trade in

agricultural commodities, as well as transportation and shipping. Examples of IAS include the Asian longhorn beetle (Sage, 2001; IPPC, 2012), the Invasive Fruit Fly (*Bactrocera invadens*) (STDF, 2013) and the Epizootic ulcerative syndrome (EUS) (OIE, 2009; Khan, et al., 1998; Lilley, et al., 1998).

1.1.4 Sanitary and Phytosanitary (SPS) Requirements of Importing Countries

Following the creation of the WTO, international trade in high-value agro-food products has expanded enormously over the last decades. This has been fuelled by globalisation, changing consumer tastes and advances in production, transport, and other supply-chain technologies (World Bank, 2005a). Fresh and processed fruits and vegetables, fish, meat, nuts, and spices now account for more than 50 percent of the total agro-food exports of developing countries (World Bank, 2005b). However, standards have come to be crucial elements facilitating transactions and trade both within and between countries, because they stipulate what can or cannot be exchanged and define the safety procedures that must be followed for exchange to take place (Jaffee, 2006).

Historically, the applicable standards for international trade in food and agricultural products were quality standards, covering physical and visual characteristics, tolerances for foreign matter, among other specifications (Jaffee, 2006). However, in recent decades, increased emphasis has been put on SPS standards aimed at the protection of human, animal and plant health. SPS standards have been developed to address various risks associated with traded food and agricultural products. Such risks include those associated with microbial pathogens, residues pesticides and veterinary drugs in food, environmental contaminants and naturally occurring toxins, and the spread of plant pests and animal diseases (World Bank, 2005b).

For long-held concerns such as the impact of pesticides on health, there has been a tightening of standards in developing as well as industrialized countries. At the same time, new standards are being developed and applied to address previously unrecognized or unregulated hazards (Henson & Jaffee, 2004). There are also significant changes along individual supply chains. With increased incidences of food safety emanating from supply of unsafe food, focus has shifted from end product testing to addressing SPS risks across the agro-food value chains. Countries wishing to export food and agricultural products must put in place necessary controls to address SPS risks at each step of the agro-food supply chain.

For trade in fresh fruits and vegetables, there are health concerns over potential hazards emanating either from production practices or the environment. Pesticide residues are a major concern in fruits and vegetables, particularly where pre-harvest intervals have not been observed. Environmental hazards include heavy metals such as Lead, Arsenic, Mercury or Cadmium and microbial contaminants such as *E.coli*, *Salmonella*, *Listeria* and *Staphylococcus* bacteria which may also emanate from poor agricultural or hygiene practices. Many countries and regions (particularly industrialised countries) have come up with stringent measures to minimise food safety risks in imported fresh fruits and vegetables.

For cereals, oilseeds, and animal feeds, there is growing international attention to microbiological contamination, plant health risks, and, for certain markets, the need to identify and label supplies based on genetically modified varieties (Jaffee, 2006). International trade in spices and nuts was historically governed by price competition and attention to physical and other product quality parameters (World Bank, 2005c).

However, in parallel with broader trends in the food industry, there has been greater attention in recent years to food safety (including mycotoxins and additives) and plant health concerns (FAO, 2005).

An increasing number of countries have severely tightened their product and process standards related to fish and fishery products, with increased attention to hygienic conditions at fish landing sites and in fish processing facilities (Allhouse, et al., 2004), and to the overall regulatory framework for fish quality and safety controls (Jaffee & Sewadeh, 2006). For example, in order to be allowed to export fish and fishery products into any EU member country the exporting country must be licenced to do so by the EU and must have public health legislation and controls for the fisheries sector which are equivalent to those existing in EU legislation (Greenhalgh, 2004). Brazil's regulation requiring use of standardized international certificates for fish and fishery products exported to Brazil caused trade concerns for China, and was raised at WTO SPS Committee (WTO, 2014).

For *live animals and livestock products*, there have been long-standing concerns about the possible transmission of contagious animal diseases through trade (FAO, 2003). Of the 334 trade concerns raised between 1995 and 2012, 40 per cent were on animal health, 30 per cent were on food safety and 24 per cent were on plant health (WTO, 2013), reflecting the significance of animal diseases in international trade. Categorisation of the animal health and zoonoses revealed that transmissible spongiform encephalopathy, accounted for 33 per cent of animal health concerns, while issues related to foot-and-mouth disease and to avian influenza accounted for 24 per cent and 9 per cent, respectively. The remaining 34 per cent related to other animal health concerns.

With the emerging links between certain animal diseases and human food and health risks, in particular Avian Flu and BSE (WHO, 2010; Biswas, et al., 2010), far more stringent sanitary measures have been adopted by many industrialized and developing countries (Buzby, 2003). Africa, for instance, faces significant challenges in market access due to animal diseases despite the reasonable potential for animal production and increasingly high world demand for meat (Cassidy, 2010).

Expedited trade brings both opportunities and phytosanitary risks. Transport times have been reduced by improved communication and transportation infrastructures. This allows economic markets to broaden and the range of products that can be traded to increase. For example, perishable products can now arrive at distant destinations more quickly and in better condition than ever before. However, this increased speed and volume of trade creates greater risk of transporting live pests that can wreak havoc on food crops and on uncultivated plants of cultural value, and reduce access to export markets at their destinations. On the other hand, the benefits of an improved communication infrastructure can reduce or mitigate the plant health risks of trade by facilitating better documentation and traceability systems. For example, improved information exchange systems can allow management measures or import requirements that implement science-based standards, such as pest risk analysis, to be notified to wider audiences and specifically to a country's trading partners.

1.1.5 Exporting Countries Must Establish Conditions for SPS Compliance

The ability to comply with standards in regional and overseas markets is a major factor determining developing countries' access to industrialized markets and more broadly the capacity to export (Jaffee, 2006). However, the majority of developing countries are

increasingly being marginalized from international trade as a consequence of their inability to establish minimum conditions for an appropriate supply of tradable goods (UNIDO, 2003). Many developing countries continue to face barriers to market access that limit their ability to reap the full benefits of international trade (OECD, 2001).

Market access alone, however, is not necessarily the key to export success. This means that developing countries must first put their houses into order by reviewing a whole raft of domestic policies so that the appropriate marketing environment is created (Jabati, 2003). Developing countries, often have to adjust both to the quickening pulse of international exchange and to reform on many fronts simultaneously and must move twice as fast to remain on the same spot (Neave, 2002). Governments and support institutions are required to make fundamental changes in policies, strategies, organisational linkages and the provision of skills to enable their agro-based industries to compete in the globalised markets, but often do not have the technical, human and information resources to be able to do so (UNIDO, 2003).

In a study commissioned by OECD in 2005 to identify barriers that interfere with the ability of developing countries to build up trade with developed countries and in South-South trade, non-tariff barriers (NTBs) ranked top (Norbert, 2005) and called for increased awareness on SPS standards and market access (OECD, 2005). Attention is also drawn to developing countries' forward-looking export strategies and related potential barriers. Developing countries faced with rising SPS standards in their export markets can maintain and improve market access, position industries for long-term competitiveness, mitigate potential adverse effects on vulnerable groups, and improve

domestic food safety and agricultural productivity *by adopting a strategic approach to food safety, agricultural health, and trade* (World Bank, 2005c).

Oversight and control are also the central challenges for those who introduce regulations and create standards. Public regulations and private standards schemes lay down rules and create mechanisms for their reinforcement. These rules specify either what the characteristics of particular products or services should be (product standards) or what characteristics the processes that create these products and services should have (process standards). In both cases, organizations that create or adopt standards try to shape the behaviour of firms implementing the standard. As process standards are increasingly promoted as the route to food safety, so regulations and standards exert control over farming and processing activities in distant locations (Henson & Blandon, 2007).

Many developing countries do not have sufficient technical, human and information resources to be able to do so. This poses acute challenges for developing countries, in particular Least Developed Countries (LDCs), where the agro-industrial sector faces increased competition and market volatility as a result. This is particularly true for African countries, which face critical challenges in improving domestic capacity to meet production and quality standards required in foreign markets (Wilson & Abiola, 2010). Proving conformity with standards frequently requires reforming and upgrading standards-setting services, as well as establishing efficient testing, certification and accreditation mechanisms that help in conforming to SPS standards and requirements in order to enjoy international recognition.

Local assessment, combined with international good practice, provides domestic companies with easily accessible and affordable objective results essential to improving design and technologies and to assuring quality. In a recent desk study of pre-existing literature on the SPS compliance systems in East Africa involving Kenya, Tanzania and Uganda, evident gaps were found in the set of information that is available, and these gaps differed across the EAC countries (Henson, 2008). It is necessary to apply standard evaluation frameworks and tools in evaluation of SPS services and capabilities in order to make informed decisions on SPS investments. Such tools include, for example, the IPPC's Phytosanitary Capacity Evaluation (PCE) tool, the Performance of Veterinary Services (PVS) framework of the OIE and the FAO Guidelines on Evaluation of Food Control Systems or the Multi Criteria Decision Making Tool (MCDA).

1.1.6 Participation of Smallholder Producers in Global Value Chains

One of the greatest concerns in global agro-food trade is that countries or particular types of producers, notably small farmers from developing countries, will be excluded from export markets (UNIDO, 2010). Animal health concerns, for example, have greatly restricted participation by developing countries in global trade in meat and meat products (Henson & Loader, 1999). The fear is that new requirements will either force developing countries out of markets to which they have hitherto had access, or impose conditions that only large-scale operators can meet, resulting in the marginalization of small-scale farmers (Gibbon, et al., 2009). In both cases, the potential development benefits from increasing global trade in agro-food products would be reduced (Dillon, et al., 2010; Webb, 2010).

Majority of developing countries have not been able to integrate into the global economy as quickly as others, partly because of their chosen policies and partly because of factors outside their control (IMF, 2002). Standards and technical regulations have attracted increasing attention in ongoing regional and global trade policy dialogue as tariff and quota issues seem to assume a declining dimension (Odularu & Tambi, 2011). But governments need to come up with SPS policies to ensure such measures are developed and instituted in conformity with the IPPC and SPS Agreement (Peralta, 2009; DAFF, 2012).

The need to produce and supply agro-food products that comply with SPS standards of importing countries has posed new challenges and opportunities for operators along the value chain. While non-compliance with SPS standards quickly leads to exclusion, in particular with regard to smallholders, value chains facilitate flows of resources and knowledge that enable compliance (UNIDO, 2010). It is recognised that exporting companies play an important role in incorporating small-scale farmers into export value chains, and so it is necessary to put considerable emphasis on building the capacity within exporting companies to train and support smallholder outgrowers. “By developing and implementing training for their smallholders, it is easier (and affordable) for companies to continue sourcing from smallholders, and for the latter to maintain their foothold in the supply chain” (Webb, 2010).

1.2 Research Problem

Kenya has invested significantly in domestic SPS control systems in order to enhance the country’s capacity to address SPS risks and open up international trade in food and agricultural products. However, there are rising incidences of non-compliance with SPS

requirements of traded agro-food products, which continue to threaten Kenya's participation in international agro-food trade. Moreover, participation of Kenya's smallholder producers in global value chains is increasingly diminishing. A variety of notifications regarding non-compliance with SPS requirements continue being raised over Kenya's agro-food exports in regional and global markets. In recent years, there have been incidences of interceptions and rejection of Kenya's agro-food exports by importing countries. The main reason for the rejections is failure to demonstrate compliance with requisite SPS standards.

Additionally, Kenya has not been able to efficiently address long standing SPS related issues for key agricultural and food exports. In the late 1990s, the European Union (EU) imposed a ban on imports of Nile perch from Lake Victoria due to SPS concerns. It took more than 5 years for Kenyan SPS institutions to address EU SPS concerns (Edewa, et al., 2010). Kenya has not been able to open up high value global markets, such as the United States, because of inability to comply with SPS requirements of such markets. Even for existing global markets especially within the European Union (EU), Kenya's exports must continually comply with the increasingly stringent SPS regulations within the EU. The United States of America (USA) imposed a ban in 2009 on importation of avocado from countries known to have invasive fruit fly host plants, which affects Kenya as well. South Africa has also imposed a ban on importation of avocado from Kenya since 2007 as a consequence of occurrence and distribution of an invasive fruit fly species.

Table 1-2 below provides a sample of current or recent SPS challenges affecting Kenya's agro-food exports.

Table 1-2: SPS Related Challenges affecting Kenya’s Agro-food Exports (as at December 2015)

SPS Problem	Reason	Type of SPS Measure	Date of Ban imposed	Date ban Lifted
EU Import restriction of poultry products	Risk of Avian Influenza	Sanitary (Animal Health) measures	2005	Still on
USA Federal government’s ban of all fruits imports from countries known to have invasive fruitfly host plants	Invasive fruit-fly (<i>Bactrocera invadens</i>)	Phytosanitary (Plant Health) measures	1st January 2009	Still on
South Africa’s ban on avocado imports from Kenya	Invasive fruitfly (<i>Bactrocera invadens</i>)	Phytosanitary (Plant Health) measures	22nd February 2007	Still on
EU requirement to conduct pesticide analysis on at least 10% of each imported consignment of fresh fruits and vegetables from Kenya	Persistent occurrence of pesticide residues in excess of legal limits	Sanitary (Food Safety) measures	1st January 2013	Still on
	Presence of harmful organisms on food	Phytosanitary (Plant Health) measures	2014	Still on

Furthermore, Kenya currently cannot export livestock and livestock products to the EU and other high-value markets because of the sanitary conditions necessary for international trade in livestock and livestock products have not been attained. If nothing is done about the problem, Kenya is likely to suffer more trade restrictions by trading partners due to SPS concerns. On the contrary, addressing the challenges associated with the problem will facilitate safe trade through implementation of SPS standards and will create more jobs and income opportunities through the upgrading of agro-food value chains.

1.3 Justification for the Research

Kenya subscribes to the charter of African Union (AU) and has been an active member since joining in 1964, when it was the Organization of African Unity (OAU). Kenya has also actively participated in the transformation of OAU to the African Union (AU).

Kenya is also a member of several regional economic communities (RECs) in Africa, notably the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Intergovernmental Authority Development (IGAD). Kenya is in the forefront in supporting trade relations with Southern Africa Development Cooperation (SADC) through the tripartite COMESA-EAC-SADC Free Trade Area. These frameworks have widened the scope of regional and international trade opportunities for Kenya's agro-industry exports which have earned the country the much needed foreign exchange for economic development.

While Kenya's opportunities for agro-food trade appear unlimited, Kenya's agro-food products continue being rejected in several countries and are not permitted in other cases due to failure to meet SPS requirements of importing countries. Market access is vital to Kenya's agricultural development. Major agricultural exports include industrial crops such as tea, coffee and pyrethrum, and horticultural produce dominated by fruits, vegetables and flowers and fish. However, SPS concerns on Kenya's agricultural exports have increased in the recent years creating the need to address these challenges along the entire value chain. The challenges can be traced back to two main challenges in Kenya as the exporting country. Firstly, Kenya's agro-food products to high value markets have failed to meet the minimum SPS requirements in importing countries. Secondly, the agro-food products have not been competitive enough in the market due to high costs emanating from expensive conformity assessment procedures. SPS compliance infrastructure in the country is either inadequate or missing. Moreover, the capacity of Kenya's SPS institutions to support agro-food value chains comply with SPS standards is being questioned.

SPS compliance is a requisite condition for expanding trade in agro-industrial products and to successfully integrate Kenya's agricultural producers and food traders into regional and global agro-food chains. However, there lacks a more general assessment of the degree to which East African countries, including Kenya, comply with international market standards and the gaps that need to be filled in order to achieve compliance (Henson, 2008). In addition to understanding the main SPS capacity constraints and possible responses, governments need to be aware of their costs and benefits to be able to establish priorities across different capacity building options and allocate resources effectively. This calls for improved techniques in economic analysis of costs and benefits associated with investments in systems for SPS compliance (Henson, 2009).

1.4 Scope of the Research

The scope of this study is on Kenya's SPS system and its capacity to support regional and international trade of agricultural and food products.

1.5 Benefits of the Research

Besides contributing to knowledge, the research is expected to produce the following benefits:

- 1) The challenges inherent in compliance with food safety and agricultural health standards may well provide a powerful incentive for the modernization of Kenya's export supply chains and give greater clarity to the necessary and appropriate management functions of government.
- 2) Via increased attention to the spread and adoption of 'good practices' in agriculture and food manufacture, there may be spill-overs into domestic food safety and agricultural health, to the benefit of the local population and domestic producers.

3) Identification of priority areas for investments by government and technical assistance programmes to address identified weaknesses in SPS capacity in both the public and private sectors and the most appropriate means through which these might be overcome.

1.6 Objectives of the Study

1.6.1 General Objective

The purpose of this study is to assess how the application of sanitary and phytosanitary (SPS) standards impacts on trade and development in Kenya.

1.6.2 Specific Objectives

- 1) To understand the causes and impacts of SPS related import restrictions on trade and development in Kenya.
- 2) To examine performance of Kenya's SPS institutions in facilitating safe agro-food trade
- 3) To understand how Regional SPS Policy and Institutional Frameworks influence Kenya's agro-food trade
- 4) To understand application of SPS controls in Kenya's export oriented value chains.
- 5) To assess the effectiveness of Kenya's SPS services in ensuring participation of smallholder producers in regional and international trade.

1.7 Research Questions

Although the Kenyan SPS system is relatively well established and resourced is there scope for improving its effectiveness? This is the overall research question in this study.

In particular the researcher seeks to answer the following questions:

- 1) What are the causes and impacts of SPS related trade concerns in Kenya?

- 2) What SPS policies and institutions are in place to implement the WTO SPS Agreement in Kenya?
- 3) Is the East African Community doing enough to establish requisite SPS frameworks to support agro-food systems of member states?
- 4) How are SPS related constraints addressed along export oriented value chains in Kenya?
- 5) How effective are Kenya's SPS services in supporting integration of smallholder producers in regional and global agro-food value chains?

1.8 Conceptual Framework and Methodology

The researcher conceptualizes that Kenya as a developing country can escape the poverty trap by improving agricultural productivity which contributes to food security and provides employment to the youth and women in rural areas leading to development. Kenya is endowed with a wealth of natural resources on which agricultural value chains can be developed for food security, job and wealth creation, and macro-economic development. In addition, accessing high value markets through regional and international trade will earn the country additional income and promote development through growth in the national Gross Domestic Product (GDP).

The conceptual framework, presented in *Figure 1-1* below, focuses on a global agro-food value chain with primary production activities in a developing country but accessing markets across the globe. It also presents the institutional environment and arrangements governing export-oriented value chain. The researcher has used this framework throughout the study using a range of socio-economic tools described under each of

section. Chapter 2 explores relevant literature from academic journals, reports, case studies and specific websites.

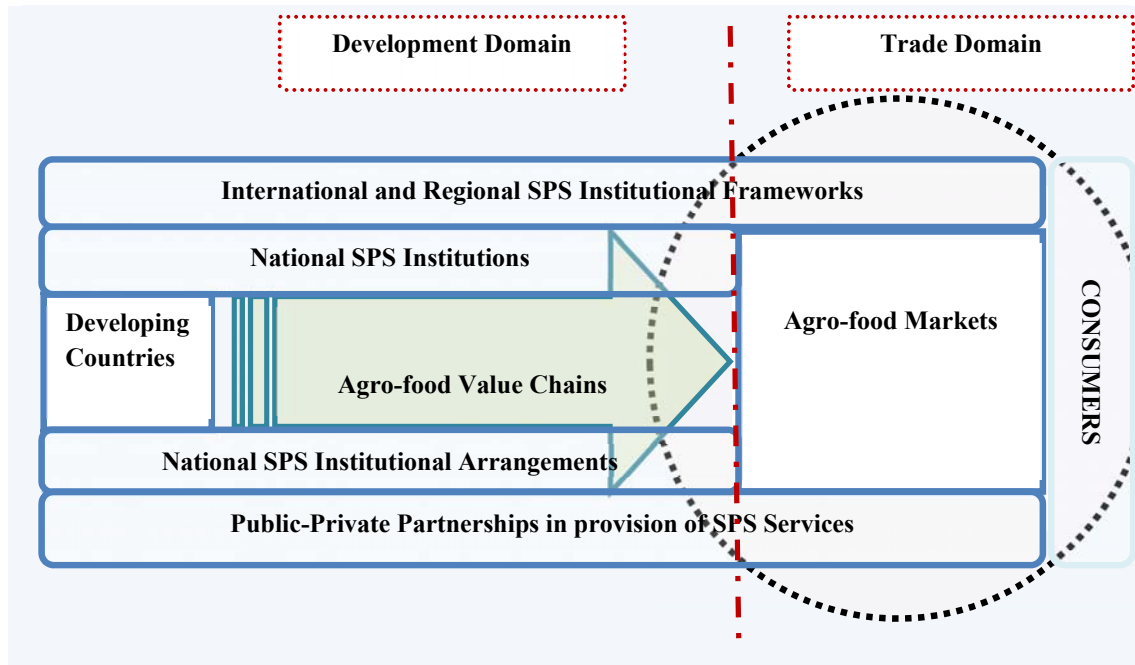


Figure 1-1: SPS Compliance Conceptual Framework

The researcher conceptualizes that increased rejections of agro-industry products at the port of entry in importing countries is an indicator of a weakness in the exporting country's SPS compliance system. Understanding the origin and nature of products not compliant with SPS requirements of importing countries helps to determine SPS compliance gaps and to define the type of investment required to improve SPS compliance infrastructure. Chapter 3 of this dissertation explores the causes of SPS related trade concerns and rejections of Kenya's agro-food exports and the impacts of such restrictions on trade and development in Kenya. A causal chain analysis methodology is followed. Sources of information included key stakeholder interviews and government reports.

The researcher conceptualises that access to high value markets for agro-food exports from Kenya depends upon the country's ability to produce tradable goods that comply with relevant quality and SPS standards. In order to gain and maintain access to regional and international markets Kenya's producers and traders have to comply with SPS requirements on two main fronts. On the one hand, they must establish minimum conditions for supply of tradable goods by investing in SPS Institutions. On the other hand they must upgrade their agricultural value chains to produce and supply goods that comply with SPS requirements of trading partners.

From a development context, the researcher conceptualises that establishing and improving performance of SPS Institutions is a key to successful establishment and implementation of SPS regulations. Institutions themselves could become an additional constraint in boosting regional and international agro-trade if they are inadequate or performing sub-optimally. Chapter 4 of this thesis elaborates the adequacy and performance of Kenya's institutional environment and arrangements for implementation of the SPS Agreement in Kenya. An institutional Analysis methodology is used. Sources of information included stakeholder interviews in Kenya and various government reports.

The researcher further conceptualises that with globalisation and increased political interest in regional trade, countries in a regional trading bloc are subject to regional obligations and preferences with regard to agro-food trade. Regional trading blocs and SPS frameworks therefore have a direct impact, whether positive or negative, on national SPS systems of member countries. In Chapter 5 the researcher assess the adequacy and efficacy of the East African Community (EAC) SPS architecture and its influence on SPS institutions of member states. Policy and institutional analyses are employed. Key

sources of information included interviews of key persons at the EAC Secretariat and Partner States and EAC reports.

From a trade perspective, ensuring that private sector complies with SPS standards will help in ensuring SPS risks associated with agro-food products are addressed at each stage of the export-oriented value chain. Chapter 6 analyses Kenya's avocado value chain as an example, with focus on SPS related constraints, current SPS management practices and options for upgrading of the value chain. It is conceptualised that increasing investments in and upgrading of agro-food value chains in compliance with SPS regulations is a requisite for competitiveness and access to regional and high value global markets. A value chain analysis of the avocado value chain in Kenya was used as a case study. Sources of information included interviews of key avocado value chain actors in Kenya.

Considering that compliance with increased stringency of SPS requirements poses a risk of excluding participation of smallholder producers in international trade, the researcher conceptualises that Government institutions and private sector have a role in protecting smallholder producers. Strengthening public-private partnerships and actively involving smallholder producers in SPS compliance programmes would ensure their continued participation in international agro-food trade. Chapter 7 explores this aspect in detail, providing current state of SPS support services and opportunities to enhance participation of smallholder producers in global value chains. The study for this Chapter was conducted using a questionnaire survey of 600 smallholder avocado producers in Kenya.

CHAPTER 2 LITERATURE REVIEW

2.1 Globalisation: Challenges and Opportunities in SPS Compliance

2.1.1 Increasing Volumes and Changing Patterns of Trade

Trade, the voluntary exchange of goods, services, money and information between individuals or groups (IMF, 2002), is a central component of the increasing connectedness among countries and promotes international development (WTO/WHO, 2002), mainly accelerated by globalisation. The globalisation of agro-food trade offers many benefits to consumers, as it can bring to the market a wider variety of foods that are accessible, affordable and meet consumer demands. A diversity of foods in a balanced diet improves nutritional status and health (FAO, 2016). More people expect a wider variety of foods than in the past; they want foods that are not in season and often eat away from home. The integration and consolidation of agricultural and food industries, new dietary habits, the globalization of the food trade and human movements are modifying the patterns of food production, distribution and consumption (Buzby, 2003).

Globalization facilitates the movement of increasing volumes of agri-food products to multiple destinations virtually simultaneously and these products increasingly originate from “non-traditional” sources (Hazell & Wood, 2008). The global interconnectedness of food businesses and the rapid movement of food and agricultural products provide a pathway for food hazards emanating from an exporting country to rapidly impact on a large number of importing countries (SDSN, 2013). This situation is rendered even more complex by the fact that a single product may contain multiple ingredients, each of which may originate from a number of countries (FAO, 2016). As global agri-food trade links

continue to grow, new means of rapidly investigating and acting on food safety incidents at the global level have to be developed and implemented (Taylor, 2015).

2.1.2 SPS Risks in International Trade

2.1.2.1 Food Safety Risks

The global food trade offers opportunities for food-exporting countries to earn foreign exchange, indispensable for the economic development and for improving the standard of living of many people. At the same time, these changes present new challenges to food safety and have widespread repercussions for health, for instance by creating an environment in which both known and new foodborne diseases may occur in greater magnitude. A single source of contamination may become widespread, with global consequences, while longer life expectancy and increasing numbers of immunocompromised people result in a larger vulnerable population (WHO, 2014).

Foodborne illnesses are usually infectious or toxic in nature and caused by bacteria, viruses, parasites or chemical substances entering the body through contaminated food or water (WHO, 2015). Foodborne pathogens can cause severe diarrhoea or debilitating infections including meningitis (CDC, 2016a). Chemical contamination can lead to acute poisoning or long-term diseases, such as cancer (WHO, 2016; CDC, 2016b). Physical hazards can enter a food product at any stage along the value chain as a foreign matter. These include variety of physical items; glass, wood, stones and plastics among others. Foodborne diseases may lead to long-lasting disability and death. Examples of unsafe food include uncooked foods of animal origin, fruits and vegetables contaminated with faeces, and raw shellfish containing marine biotoxins.

Traditionally, the term “foodborne disease” has been used for illnesses caused by microorganisms, with often acute reactions, such as diarrhoea. However, in order to address the full scope of causative agents —of a bacterial, viral, prionic, parasitic or chemical nature— and acute, sub-acute as well as chronic diseases, the term foodborne disease is used here in a wide, all-encompassing sense (WHO, 2013). It includes foodborne zoonoses and other risks associated with food along the entire food chain, as well as new and emerging health issues associated with food.

2.1.2.2 Animal- or plant- Carried Diseases

Zoonoses

Diseases that can be transmitted from animals to humans are referred to as zoonotic diseases or zoonoses. Over 200 zoonoses have been described, and they may be classified according to the type of causative agent, such as bacteria, viruses, parasites, fungi, or other communicable agent. These diseases represent significant public health threats, and although most of them can be prevented, many are not prioritized by health systems at national and international levels and are termed "neglected" diseases (WHO, 2013). The greatest risk for zoonotic disease transmission occurs at the human-animal interface, through direct or indirect human exposure to animals, their products and/or their environments. These diseases can be transmitted directly by contact with an animal (e.g., rabies, through a bite), via a contaminated environment (e.g., anthrax) and via food (e.g., campylobacteriosis), or indirectly via vectors, such as mosquitoes or ticks (e.g., West Nile fever, dengue, malaria and Lyme disease, respectively). Both domestic and wild animals act as reservoirs for these pathogens. The diseases they cause in humans range

from mild and self-limiting (e.g., most cases of campylobacteriosis) to fatal (e.g., Ebola and rabies) (WHO, 2015).

Plant Carried Diseases

There are few pathogens that can infect humans as well as plants, and those that do tend to be "opportunistic pathogens" of both, only able to infect weakened hosts. Perhaps the most notable of these pathogens is the bacterium *Pseudomonas aeruginosa*, which can cause a weak soft rot of plants such as lettuce. In people with compromised immune systems, this bacterium is known to infect the urinary tract, lungs, blood, and burns and other wounds. It is especially common in hospitalized patients whose immune systems are compromised by severe burns, cancer, AIDS, or cystic fibrosis.

Some fungi that live on decaying plants can cause disease in humans. One example is *Sporothrix schenckii*, a fungus that frequently lives on dead rose thorns. This fungus can cause sporotrichosis, also called "rose-picker's disease", if it gets into a person's skin (such as through a scratch) and into the lymph system, or if a person inhales its spores (CDC, 2016c; Barros, et al., 2011; Chakrabarti, et al., 2015). Additionally, some plant pathogenic fungi produce compounds that can be toxic to people, although the pathogen itself does not infect people. For example, some fungi that cause ear rots on corn, such as *Fusarium*, produce "mycotoxins" (toxins produced by fungi). The mycotoxins produced by *Fusarium* include fumonisins, zearalenone, and the aptly-named vomitoxin. Effects of mycotoxins in livestock that are fed contaminated grain can include development and reproductive problems, vomiting, general lethargy, and death, depending on the particular mycotoxin present and the level of contamination. *Aspergillus flavus* is a common

contaminant of grain and peanuts, and it produces mycotoxins called aflatoxins. Mycotoxins are generally an issue only on grain, not on common garden produce, and grain for human consumption is well monitored for their presence.

2.1.2.3 Pests and Diseases of Animals and Plants

Infectious disease agents and toxins found in animal populations and animal products are a considerable and on-going threat to animal health, economies, biodiversity, food security (both crops and livestock), food safety, and public health. With more animals and animal products travelling greater distances in shorter periods of time and food production becoming concentrated to fewer countries and production enterprises, the world is becoming increasingly vulnerable to potential adverse consequences of animal diseases.

Animal Diseases and Pests

The World Organisation for Animal Health recognises animal disease status of different countries. The OIE prioritises seven trade sensitive diseases for official recognition of animal disease status. These include African horse sickness (AHS), Bovine Spongiform Encephalopathy (BSE) risks, Classical Swine Fever (CSF), Contagious Bovine Pleuropneumonia (CBPP), Foot and Mouth Disease (FMD), Peste des Petits Ruminants (PPR) and Rinderpest. In 1998, the official agreement between the World Trade Organization (WTO) and the OIE confirmed the OIE's mandate to recognise disease and pest-free areas for trade purposes, in the context of the WTO Agreement on the Application of Sanitary and Phytosanitary Measures. By acquiring and maintaining its official status, a country demonstrates transparency and helps to promote animal health

and public health worldwide, thereby gaining the trust of its trade partners, neighbouring countries and the international community as a whole (OIE, 2016).

Plant Diseases and Pests

The ubiquitous and growing threats posed by plant pests to agricultural and rural communities, to plant biodiversity and to natural habitats and ecosystems around the world remain major problems to agriculturalists, foresters and conservers of the environment. New pests are constantly being identified and known pests are becoming more widespread and damaging because of trade and climate change, so the battle with pests is on-going. Although the impacts of pests range from negligible to extremely high, it is often difficult to fully assess these impacts. If pests can be prevented from establishing in an area, the resources used in prevention are invariably significantly lower than those needed for long-term control, containment, eradication (if possible) after introduction, or the consequences of doing nothing (IPPC, 2012).

Pests of plants can have severe impacts on economies, food security, market access and natural landscapes. The introduction and establishment of new pests can cause significant economic and physical damage to the environment by destroying forests and native habitats, affect food security by lowering domestic food production, and threaten trade by reducing access to export markets. The management and eradication of pests is extremely difficult and expensive, so stopping them before they move to new destinations is the best way to avoid their negative impacts (IPPC, 2012).

2.1.2.4 Other Damage caused by entry, establishment and spread of pests

A major factor in the loss of biodiversity in our environment is “Invasive Alien Species” (IAS) based on their capacity to out-compete or prey on native species and subsequently cause a degradation of the biodiversity in the area of their introduction. IAS are species introduced into new habitats where they thrive and threaten biodiversity, including agricultural and domestic species and wildlife. The risks and damages caused by IAS can be massive, especially for fragile island ecosystems (CBD, 2010). Besides the obvious environmental impacts, IAS may cause economic damages through yield losses or control costs and may adversely affect animal and/or human health (e.g. zoonoses or plants with allergenic properties). Threats include competition for food, the spread of disease and predators. Species that are in balance for one environment can become invasive in other habitats.

2.2 International Governance of SPS Standards

While SPS standards facilitate safe international trade by enabling importing countries to assess the specifications and the safety of products offered for sale, they can become barriers to trade if they differ widely from country to country. Likewise, where regulatory authorities require product testing, inspections and approvals in the importing country in order to ascertain compliance with that country’s SPS requirements, foreign suppliers may be at a disadvantage if their products are subjected to stricter controls or higher fees than those required for domestic products (WTO, 2005). The number of technical regulations and SPS measures is steadily increasing in most countries with rising stringency. The trend is the response of governmental regulatory authorities to growing public demand that products marketed should meet minimum quality and safety

standards, and not have any adverse impact on the health of the consuming public and on the environment. The same considerations often impel regulatory authorities to set and apply stricter SPS regulations (UNIDO, 2007).

2.2.1 International Rules on Application of SPS Measures

International rules governing application of SPS regulations are provided for in the Agreement on Application of Sanitary and Phytosanitary Measures (SPS Agreement) (WTO, 1995). The SPS Agreement is a part of the regulations in the Accords that established the World Trade Organization (WTO) in 1994. The SPS Agreement marked an important development in multilateral trade rules by creating a consensus on agricultural trade issues relating to food-borne diseases and invasive pests (UNIDO, 2007). The Agreement sought to safeguard the interests of importing countries without infringing on the legitimate right of other countries to trade with them (WTO, 1998). The SPS Agreement lays down rules for applying SPS measures (WTO, 2007) and recognizes the right of countries to safeguard the health of their people, animals and plant life from harmful imports, provided that this protection is based on scientific justification (WTO, 1995). The intention is to promote trade, not to impede it.

2.2.1.1 Harmonization

The WTO SPS Committee has adopted a procedure to monitor the use of international standards. WTO Members are invited to identify specific trade problems they have experienced due to the use or non-use of relevant international standards, guidelines or recommendations (WTO SPS Committee, 2004). These problems, once considered by the SPS Committee, are drawn to the attention of the relevant standard-setting body. Annual reports on the monitoring procedure summarize the standards-related issues that the SPS

Committee has considered and the responses received from the relevant standard-setting organizations (CODEX, 2016).

The WTO recognises that each Member has the sovereign right to set its appropriate level of protection when applying sanitary measures for international trade as long as they comply with the provisions established in the SPS Agreement. In the OIE context, the term “sanitary measure” means “a measure, such as those described in various Chapters of the Terrestrial Code, destined to protect animal or human health or life within the territory of the OIE Member from risks arising from the entry, establishment or spread of a hazard” (OIE, 2010b; OIE, 2012). The standards of OIE have also proved an important reference point for the dispute settlement mechanisms of the WTO e.g. Australia — Measures Affecting Importation of Salmon DS18 (WTO, 2016a).

OIE Members who are WTO Members may comply with their obligations under the SPS Agreement either by basing their measures on relevant OIE international standards, or by carrying out a scientific risk analysis as outlined in Section 2 of the Terrestrial Code (2008). The standards and recommendations contained in the *Code* are designed to facilitate and promote international trade (OIE, 2012). The OIE *Code* is a reference document for use by veterinary authorities, those responsible for making decisions on the import and export of animals and their products, and all those involved in international trade (OIE, 2012). The application by Members of the OIE standards is the best means of avoiding disagreement and other problems in international trade (OIE, 2014).

The IPPC encourages global implementation of its internationally agreed standards to secure common and effective action to prevent the movement of pests, particularly in

trade. This focus on the application of IPPC and associated standards fosters an open, mutually beneficial process for all parties rather than having the adversarial framework of a compliance mechanism (IPPC, 2013a). The IPPC has initiated a system to provide a systematic and prolonged review of contracting parties' application of the IPPC and its standards, as well as to support further implementation. This implementation review and support system (IRSS) aims to facilitate improved implementation of the IPPC's standards by identifying key implementation issues and developing plans to address these challenges. A help desk will be a key feature of this new initiative (IPPC, 2013b).

Since June 2005, the SPS Committee has discussed the issue of private and commercial standards, and several information sessions have been held in the margins of the SPS Committee meetings. WTO Members have raised a number of concerns regarding the trade, development and legal implications of private standards. The issue was initially raised by St. Vincent and the Grenadines with regard to EurepGAP (now GLOBALGAP) requirements on pesticides used on bananas destined for sale in the United Kingdom (WTO SPS Committee, 2007a; Delimatsis, 2015). Since then, private standards have been discussed regularly at SPS Committee meetings (WTO SPS Committee, 2011; WTO SPS Committee, 2014a).

There is much interest on the part of developing country members for the SPS Committee to address this issue in a practical manner. The main concerns that they have raised in the WTO about private standards include the proliferation of such schemes, their deviation from international standards, their costly certification requirements, and the lack of a transparent and science-based approach. On the basis of proposals from members about what the SPS Committee can and should do to: (i) reduce the negative effects that private

SPS standards can have on international trade, especially for developing countries; and (ii) enhance the potential benefits of private SPS standards for developing countries, the Committee agreed to a three-step procedure to be led by an ad hoc working group on private standards (WTO SPS Committee, 2011; WTO SPS Committee, 2014a; WTO SPS Committee, 2015).

2.2.1.2 Equivalence

The SPS Agreement requires governments to recognise that there may be more than one way to ensure a product is equally safe. If an exporting country can demonstrate that the safety of its product is equivalent to that required by the importing country, then the product should be permitted, even though it was not produced according to the standards or processes normally required by the importing country (Article 4) (WTO SPS Committee, 2004). The initial burden is on the exporting country to provide the necessary evidence to show that its product is equally safe, and on the importing country to objectively assess this claim.

Many developing countries do not have the infrastructure or resources to use these sophisticated production, processing or testing techniques, yet can produce equally safe products using more traditional methods. At the WTO, developing countries requested that clearer guidance be given to facilitate the implementation of this provision, particularly in the context of the SPS Agreement. The SPS Committee reached a decision on the implementation of the equivalence provision in October 2001, which was further elaborated on in the following years (WTO SPS Committee, 2004). The decision emphasizes that equivalence may be recognized for a specific treatment and/or specific product, or on a systems wide basis.

2.2.1.3 Transparency

One of the basic principles of the WTO is that trading partners should be able to identify what requirements and restrictions may affect their products. As of May 2010, members have submitted 7,804 regular notifications, 1,211 emergency notifications, and 2,596 addenda and corrigenda to regular and emergency notifications. Food safety was identified as the objective of the measure in 2,381 notifications; protecting humans from animals/plant pest or disease in 1,939 notifications; plant health in 1,286 notifications; animal health in 914 notifications; and protecting the territory from other damage by pests in 383 notifications. It should be noted that a measure will often have several objectives.

As of May 2010, 102 members out of 153 (66 per cent) have submitted at least one notification to the WTO. Members who have not submitted any notification so far include 20 developing countries and 23 Least Developed Countries (LDCs) (WTO, 2013). A total of 1,281 notifications, that is 1,167 proposed new or revised SPS measures and 114 emergency ones, were submitted to the WTO in 2015. Among these, 923 regular notifications and 41 emergency notifications identified food safety as the objective of the measure. Of these, 433 of the regular and one of the emergency notifications identified a Codex standard as relevant, either indicating the application of the Codex standard or a deviation from it (WTO SPS Committee, 2016).

The SPS information management system (SPS-IMS) allows easy access and management of all WTO SPS-related documentation (WTO, 2016). The legal obligation of WTO Members is to notify new or modified SPS measures when these deviate from the relevant international standards, including Codex standards. The recommendations of

the SPS Committee, however, now encourage the notification of all new or modified measures even when these conform to international standards (WTO, 2016). Although this recommendation does not change the legal obligations of WTO Members, it may enhance transparency regarding the application of Codex standards. Moreover, SPS National Notification Authorities can complete and submit SPS notifications online through the SPS Notification Submission System (SPS NSS). 57% of notifications submitted during 2015 were submitted online (WTO SPS Committee, 2016).

2.2.1.4 Dispute resolution

As of March 2016, more than 500 complaints had formally been raised under the WTO's dispute settlement procedures. Of these, 44 alleged violations of the SPS Agreement, and the SPS Agreement was relevant also in two other disputes. Twenty-four SPS-related complaints, on 19 issues, have been referred to a panel (WTO SPS Committee, 2016). Three panel reports have concerned plant pests and quarantine requirements: (i) the United States complaint about Japan's requirement for testing each variety of fruit for efficacy of treatment against codling moth (Japan-Agricultural Products) (WTO, 1998; WTO, 1999); (ii) the United States' complaint about Japan's set of requirements on apples imported from the United States relating to fire blight (Japan-Apples) (WTO, 2005; WTO, 2003); and (iii) New Zealand's complaint against Australia's restrictions on apples (Australia-Apples) (WTO, 2010; CPM, 2016).

Twelve complaints addressed food-safety related issues, including: Complaints by the United States and Canada in 1996 regarding the European Communities' ban on meat treated with growth-promoting hormones; *EC - Hormones* (WT/DS26 and WT/DS48, respectively); Complaints by the United States, Canada and Argentina in 2006 regarding

the European Communities' measures affecting the approval and marketing of biotech products; *EC – Approval and Marketing of Biotech Products* (also referred to as *EC - GMOs*) (WT/DS291, WT/DS292 and WT/DS293, respectively); and Complaints by the European Communities in 2008 regarding the United States' and Canada's continued suspension of obligations relating to the EC - Hormones dispute., among others (WTO SPS Committee, 2015).

2.2.2 International Institutional Arrangements

2.2.2.1 The WTO SPS Committee

The SPS Committee has been established to oversee the implementation of the Agreement and provide a forum for the discussion of any trade issues related to SPS measures (Article 12). Like other WTO committees, all WTO Members have the right to participate in the work and decision-making of the SPS Committee. Decisions are taken by consensus. The SPS Committee has accepted Codex, OIE and IPPC as observers, as well as a number of other international and regional intergovernmental organisations with activities in food safety, animal health and plant protection. The SPS Committee normally holds meetings three times each year, usually at the WTO Headquarters in Geneva. In addition to considering specific trade concerns raised by governments, the SPS Committee reviews virtually all of the provisions of the Agreement at its meetings, with standing agenda items on monitoring the use of international standards, transparency, equivalence, regionalization, technical assistance and special and differential treatment.

2.2.2.2FAO/WHO Codex Alimentarius Commission (Codex)

The Joint Food and Agriculture Organization/World Health Organization (FAO/WHO) Codex Alimentarius Commission (Codex) was established in 1962 to establish standards for food safety (Codex, 2015). The Commission currently has 185 (by December 2014) member governments who, with the advice of independent technical experts selected by FAO and WHO, develop food standards, guidelines and recommendations for the protection of consumer health. Codex recognizes the importance of minimizing the effect of such regulations on food trade. Member states formally endorse Codex standards, after thorough reviews of scientific papers based on widely accepted risk assessment procedures. While it remains voluntary for governments to apply Codex standards, there are strong incentives to do so, as food production that meets Codex standards can facilitate trade by creating greater export opportunities.

2.2.2.3World Organisation for Animal Health (OIE)

The *Office International des Epizooties* (OIE) was established in January 1924 to fight animal diseases at global level. In May 2003 the Office became the World Organization for Animal Health but kept its historical acronym OIE. The OIE is the intergovernmental organization responsible for improving animal health worldwide. It is recognized as a reference organization by the World Trade Organization (WTO) and by June 2013 had a total of 178 Member Countries (OIE, 2013a). The SPS Agreement recognizes the OIE as the relevant standard-setting body for SPS measures relating to animal health and zoonoses. The relevant recommendations are contained in particular in the OIE Terrestrial Code and Aquatic Code, for terrestrial animals and aquatic animals respectively, and in the *OIE Manuals of Diagnostic Tests and Vaccines*.

The WTO recognises that each Member has the sovereign right to set its appropriate level of protection when applying sanitary measures for international trade as long as they comply with the provisions established in the SPS Agreement. In the OIE context, the term “sanitary measure” means “a measure, such as those described in various Chapters of the Terrestrial Code, destined to protect animal or human health or life within the territory of the OIE Member from risks arising from the entry, establishment or spread of a hazard” (OIE, 2010b; OIE, 2012; OIE, 2014).

2.2.2.4 International Plant Protection Convention (IPPC)

The International Plant Protection Convention (IPPC) is an international plant health agreement (FAO, 1997a) that aims to secure coordinated, effective action to protect cultivated and wild plants by preventing the introduction and spread of pests of plants and plant products (IPPC, 2013a) while minimizing interference with international movement of goods and people (FAO, 2012a). The signatories, also known as Contracting Parties, are 178 governments and 1 regional organization (as of May 2013) and are required to adhere to the Convention (IPPC, 2013a). The IPPC is recognized by the WTO SPS Agreement as the sole international standard setting body for plant health. The IPPC is a legally binding international agreement, but the IPPC standards are not legally binding (FAO, 2012a). The Convention allows contracting parties to gain assurance through phytosanitary certification that imports will not introduce new pests into their territories.

Under the WTO SPS Agreement, recognises other International organisations operating under the auspices for the IPPC. The Convention on Biological Diversity (CBD) is an international legally-binding treaty with three main goals: conservation of biodiversity; sustainable use of biodiversity; and the fair and equitable sharing of the benefits arising

from the use of genetic resources. Its overall objective is to encourage actions which will lead to a sustainable future. The conservation of biodiversity is a common concern of humankind.

2.3 Regional Approaches to SPS Compliance

2.3.1 Why Regional Trade Agreements?

In the WTO, regional trade agreements (RTAs) are defined as reciprocal trade agreements between two or more partner (WTO, 2016b) s. RTAs are formed with the objective of reducing barriers to trade between member countries. Contrary to what the name suggests, RTAs may be concluded between countries not necessarily belonging to the same geographical region. Depending upon their level of integration, RTAs can be broadly divided into five categories: Preferential Trade Agreements (PTAs), Free Trade Agreements (FTAs), Customs Unions (CUs), Common Markets and Economic Unions (WTO, 2011).

RTAs provide for the exchange of reciprocal preferences among their members, and have become an important part of the global landscape of international trade (Baldwin & Thornton, 2008). Most of them build upon commitments that have been agreed in the context of the multilateral trading system and therefore provide additional preferential treatment to RTA partners than that provided on a Most-Favoured Nation (MFN) basis to all other WTO Members (WTO, 2011). RTAs are an integral part of international trade, accounting for almost half of world trade and expected to grow further in the next few years. RTAs operate alongside global multilateral agreements under the WTO, and have both positive and negative effects (OECD, 2003). They can be attractive, for example, because it may be easier for a small group of neighbouring countries with similar

concerns and cultures to agree on market opening in a particular area than to reach agreement in a wider forum such as the WTO. They can also offer new approaches to rule-making and so act as stepping stones on the way to a multilateral agreement.

The Uruguay Round Agreements provide for groups of member countries to enter into trade agreements among themselves for the purpose of liberalizing trade. In February 1996, the WTO General Council established the Committee on Regional Trade Agreements. Its two principal duties are to examine individual regional agreements; and to consider the systemic implications of the agreements for the multilateral trading system and the relationship between them (WTO, 2007). Examples of RTAs include: the North American Free Trade Agreement (NAFTA) between Canada, the United States and Mexico; the Treaty of Acunción established the Southern Common Market (MERCOSUR) between Argentina, Brazil, Paraguay and Uruguay; Asia-Pacific Economic Cooperation (APEC) Council between 18 countries in Asia and Pacific have formalized economic cooperation arrangements under the title.

Under WTO rules, all RTAs must be notified to the WTO under either Article XXIV of the GATT 1994 or paragraph 2(c) of the Enabling Clause for RTAs covering liberalization in goods and Article V of the General Agreement on Trade in Services for liberalization in services. For RTAs liberalizing trade in goods, the Enabling Clause applies only to agreements among developing countries; agreements between developed countries and between developed and developing countries may only be notified under Article XXIV (WTO, 2016).

By end 2014, 258 RTAs in force had been notified to the WTO. In addition, there are a number of other RTAs in force that have yet to be notified and new negotiations are

under way suggesting that the current upward trend in RTAs is likely to continue (Acharya, 2016). A majority of the agreements that have been notified to the WTO are bilateral agreements, involving only two parties. In addition, a majority of them are between developed and developing countries or between developing countries only. It should be pointed out that RTAs have always co-existed with the multilateral trading system and the WTO rules permit the formation of RTAs under certain conditions (OECD, 2003). Nevertheless, the recent growth in RTAs as well as their increasing scope has raised a number of questions about their impact on the multilateral trading system and the rules that WTO Members trade under (Dent, 2010; Capling & Ravenhill, 2011; Zheng, 2013; Acharya, 2016).

2.3.2 Regional SPS Frameworks

In the recent decades, there has been increased interest on the part of many countries in developing or strengthening regional groups as a means of furthering common economic and trade interests among countries with geographic, cultural and developmental similarities. This trend can influence SPS regulations in many ways (WTO, 2016b). These economic groupings can become an effective vehicle for achieving improved collaboration and coordination among countries in identifying and addressing food safety issues, thus ensuring a stronger voice in multi-lateral food safety forums and a more effective and efficient enforcement of food safety at national and regional levels. However, it is important that, during their development, regional and bilateral trade agreements be fully consistent with WTO SPS obligations in relation to food safety and implement effective connections with multilateral systems aimed at managing food safety.

For SPS, relatively few substantive differences are found in RTAs from the WTO Agreements. Whenever these exist, they tend to be different procedures, reporting or notification requirements, or the possibility of mutual recognition agreements. However, in general, TBT provisions in these agreements simply reaffirm the parties' rights and obligations under the WTO TBT Agreement. A small number of cases introduce new provisions, including on coverage, MRAs, labelling and marking or stronger commitments in the areas of harmonization and equivalence. In terms of coverage, about half of the RTAs cover standards, technical regulations and conformity assessment, and a minority also cover metrology (WTO, 2016b).

A number of RTAs have adopted measures consistent with principles embraced by the Uruguay Round Agreements and which relate to Codex standards. NAFTA includes two ancillary agreements dealing with SPS measures and technical barriers to trade. Codex standards are cited as basic requirements to be met by the three member countries in terms of the health and safety aspects of food products. MERCOSUR's Food Commission has recommended a range of Codex standards for adoption by member countries and is using other Codex standards as points of reference in continuing deliberations. APEC has drafted a Mutual Recognition Arrangement on Conformity Assessment of Foods and Food Products. This calls for consistency with SPS and TBT requirements as well as with Codex standards, including the recommendations of the Codex Committee on Food Import and Export Certification Systems. In addition, EU directives emphasize on risk analysis and equivalence of food control systems through frequent reference to the Codex Alimentarius, IPPC and OIE as the basis for their requirements (WTO, 2016b; Froman, 2014).

For SPS, current work being done by the WTO Secretariat suggests that as for TBT, SPS measures in RTAs have become more common over time, although relatively few go beyond the WTO SPS Agreement. The majority of agreements notified to the WTO up to the end of 2014 contain general exceptions similar to Article XX(B) of the GATT (Acharya, 2016). Just over two-thirds of the agreements notified contain some form of SPS-specific provisions and about a fifth contained a dedicated SPS chapter. A good example is the North American Free Trade Agreement (NAFTA) entered into force before the WTO was established, and thus before there were enforceable multilateral disciplines on SPS measures, the NAFTA contains a much more detailed SPS chapter, and imposes specific disciplines on the development, adoption, and enforcement of SPS measures (Froman, 2014).

Most FTAs that were concluded since the WTO was established in 1995 include an SPS chapter. While those chapters do not impose new or additional substantive rules or obligations, many of these agreements establish SPS committees that provide a forum for the parties' trade and regulatory authorities to discuss contentious bilateral or regional SPS issues, consult on SPS matters that are pending before relevant international organizations, and coordinate technical cooperation programs (WTO, 2016b).

2.4 Implications of SPS Standards for Developing Countries

2.4.1 Countries Must Integrate into Global Value Chains

The concept of global value chains emphasises that local production is embedded in global markets. Scholars of global value chains often assume that much of the international trade is coordinated by certain lead firms and that global value chains can be understood as networks of functionally interrelated producers and buyers that are

engaged on a global scale in processes of value creation as products pass across borders and between different actors in the chain (Humphrey & Schmitz, 2008; Gereffi & Fernandez-Stark, 2011).

Empirical studies on the structure and evolution of global value chains have shown that there are different types of global value chains (Humphrey, 2005; Gibbon, 2001; Gereffi, 1994), some of which are driven by the *power of multinational buyers* in industrialized countries (Bair & Gereffi, 2003; Schmitz, 2006; Bair & Dussel-Peters, 2006; Memedovic & Mattila, 2008) and others by the power of large manufacturers (Weiss, 2002; Sturgeon, et al., 2009). One of the main differences between buyer-driven and producer-driven value chains is that the former often do not own production facilities, but rather act as key agents investing in design, marketing and sales (UNIDO, 2009). Where there is unbalanced market power in agro-food chains, value addition and capture tends to be concentrated among one or a few chain participants, to the detriment of others (Silva & Baker, 2009).

Related to the argument of power is that of *barriers of entry*. It has been showed that an entrepreneurial surplus can accrue to those who create barriers of entry, which is what happens when entrepreneurs innovate, creating new combinations and conditions, which provide greater returns from the price of a product (Schumpeter, 1934). Agro-industries will be sustainable only if they are competitive in terms of costs, prices, operational efficiencies, product offers and other associated parameters and only if the process they are able to pay producers are remunerative (Silva & Baker, 2009). However, it has also been demonstrated that producers and exporters from developing countries face

considerable barriers of entry (Gereffi, 1994) and so they depend on lead firms in value chains that allow them access to developed country markets (Gereffi, 1994; Ponte, 2002).

Related to the concept is that of *economic rents* which result from the ability to construct barriers to entry or from access to or control over existing scarce resources (Kaplinsky & Morris, 2008). Establishing and maintaining competitiveness constitutes a particular challenge to small- and medium-scale agro-industrial enterprises and small-scale producers. Although agro-industries have the potential to deliver a reliable and stable outlet for farm products, the need to ensure competitiveness favours farmers who are better able to deliver larger quantities, better quality and safe products. To the extent that smaller, resource poor farmers are left out of the supply chains, the socio-economic benefits of the agro-industries are potentially reduced.

Many authors have shown that certain companies and countries establish *standards, rules and regulations* that tend to prevent some actors from participating in the value chain (Maertens & Swinnen, 2007; Mathews, et al., 2003; Desta, 2008). Small producers in developing countries often find it difficult to comply with the requirements of large food retailers with regard to quantity and quality to be delivered (UNIDO, 2009). However, there are also cases where the establishment of standards does not act as a barrier of entry (Jaffee & Henson, 2005; Maertens & Swinnen, 2009/1). Maertens and Swinnen (2007) could show for the case of vegetable exports from Senegal that exports grew sharply despite increasing standards, contributing importantly to rural incomes and poverty reduction but they then led to structural change from smallholder contract farming to integrated estate production.

The increased stringency of food safety and agricultural health standards is a source of concern among many developing countries (Henson & Jaffee, 2004). These SPS standards are perceived as a barrier to the continued success of their exports of high-value agro-food products, either because these countries lack the technical and administrative capacities needed for compliance or because these standards can be applied in a discriminatory or protectionist manner (Jaffee & Sewadeh, 2006). Yet, in many cases, SPS standards have played a positive role, providing the catalyst and incentives for the modernization of export supply and regulatory systems and the adoption of safer and more sustainable production and processing (World Bank, 2005b).

Agri-food products are a major component of international trade. Exports of fresh and minimally processed products have expanded in recent years, fuelled by globalization, changing consumer tastes, and advances in production, transport, and supply chain technologies. In order to market their products internationally, producers and enterprises in developing countries need to link with the global supply chains overwhelmingly managed today by Transnational Corporations (TNCs). Leading transnational corporations in developed countries are increasingly able to control the production, marketing and distribution of the world's most important commodities and products (UNIDO, 2004b).

The ability of developing countries to successfully participate in international trade and to manage the linkages between value chain activities is a source of supply chain competitive advantage (Porter, 1985) depends upon how they master technologies and take advantage of market-opening measures in the advanced industrial countries (UNIDO, 2003). In particular, the capacity of developing countries and their producers to

trade agri-food products is highly dependent upon their ability to demonstrate effective control of SPS concerns in the agri-foods they trade.

The need for developing countries to *upgrade* in order to continue participating in global trading system is a subject that has attracted much focus (Kaplinsky, et al., 2009). Value chain upgrading- acquiring knowledge and technologies necessary for competitiveness- has to take place at a faster pace than the actors in the competing chains (UNIDO, 2009). Some developing countries have been successful in complying with increasing food standards and upgrading their export sectors as a basis for long term export growth (Maertens & Swinnen, 2009). Indeed Jaffee and Henson (2005) note that the most successful countries and/or sectors have used high quality and safety standards to reposition themselves in competitive global markets. In some cases local producers can also try to upgrade in such a way that they develop their own value chains to reach consumers on global markets but this requires substantial support from governments and development agencies for a longer period of time (Humphrey & Schmitz, 2008).

Value Chain governance, which refers to the coordination of operators along the value chain stages (GTZ, 2008), may take the form of un-coordinated transactions, which may be efficient in local markets, or binding contracts which are made in advance. However, in today's globalized markets where collective and systemic competitiveness becomes increasingly important (UNIDO, 2009), chain coordination allows agents to reduce costs and risks in production, transport and storage and permits timely production in response to the demands of buyers and consumers (Humphrey, 2005). Chain governance allows for the establishment of efficient producer/supplier and buyer relationships with low transaction costs and increased liability (Kleih, 2012b), and as elaborated by Kaplinsky

and Morris (2002), can be illustrated with analysis of different functions associated with the regime of rule-making and rule keeping. The government can and should involve itself in chain governance and deal with issues of price policy, subsidies, research and development and infrastructure development (UNIDO, 2009), although chain governance does not always require legislation as informal intra-chain regulations can also be efficient.

2.4.2 Countries Should Support Smallholder Producers

'Market Access'—the extent to which a country permits imports under specified conditions—determines various activities on the supply side of the agro-food chains. A wide range of tariff and non-tariff barriers can be used to limit the entry of foreign products. Improved market access to affluent developed markets can provide developing countries with the opportunity to escape the poverty trap and achieve economic growth through trade (Jabati, 2003). The penetration of market economy into formerly isolated and remote areas opens up opportunities for raising agricultural and agro-industrial productivity, providing employment for the local population and generating value-added to the local community, particularly in rural areas (UNIDO, 2004a) which are facing pervasive problems of food insecurity, poverty, malnutrition and limited competitiveness (World Bank, 2003b).

The greatest concern participation in global value chains is that developing countries or particular types of producers, notably small farmers, will be excluded from export markets (UNIDO, 2010). Developing countries have long been largely excluded from substantial parts of global trade in agri-food products. Animal health concerns, for example, have greatly restricted participation by developing countries in global trade in meat and meat

products. The fear is that new requirements will either force developing countries out of markets to which they have hitherto had access, or impose conditions that only large-scale operators can meet, resulting in the marginalization of small-scale farmers. In both cases, the potential development benefits from increasing global trade in agri-food products would be reduced (UNIDO, 2010).

These concerns are not without foundation. A simple, market based procurement system might suffice for sourcing products whose relevant attributes are readily discernible to the buyer (through inspection or testing), but if regulations and standards create new and difficult-to-monitor requirements for product safety, environmental impact or working conditions, they can be difficult to meet. Furthermore, the complexities of these requirements may shift enterprises' sourcing strategies towards more durable and complex relationships and towards larger suppliers. This is particularly so when compliance involves demonstrating that the correct procedures are being followed on the farm or in the processing plant. Some studies of the impact of introducing compliance with new regulations and standards have highlighted the ways in which these favour large establishments and create problems for small farmers and small exporters (Graffham et al. 2007; Mithöfer et al. 2007).

Strong links to markets for poor rural producers are essential to increasing agricultural production, generating economic growth in rural areas and reducing hunger and poverty (IFAD, 2012). Improving these links creates a virtuous circle by boosting productivity, increasing incomes and strengthening food security. Better access by small producers to domestic and international markets means that they can reliably sell more produce at higher prices. This in turn encourages farmers to invest in their own businesses and

increase the quantity and quality of the goods they produce. Seizing emerging opportunities for promoting agribusiness in the new global context is, therefore, imperative for prosperity and economic development.

There are new pressures in agri-food value chains. Buyers in developed countries must ensure that the products they sell meet public regulations and market requirements. Equally, producers, processors and exporters in developing countries are expected to show compliance with SPS regulations and standards. The salient feature of complex agri-food value chains is vertical coordination. This is the ability of firms to coordinate their activities through flows of resources and information. One prime motivation for this coordination is control. As agri-food business operators in developed countries are increasingly held responsible for what happens along the value chain, so they seek oversight and control. In the past, this might have been achieved through ownership. Now, oversight and control can be achieved through a variety of network relationships and through standards.

Other studies, however, have shown more positive outcomes. Some have pointed to the way in which coordination in global value chains creates linkages along the chain that facilitate flows of knowledge and resources of a kind that create more inclusive value chains that might create opportunities for small farmers. First, these studies have highlighted the importance of exporters in developing countries as key actors in value chains that provide an interface between developed country buyers and developing country producers (Gibbon et al. 2009; Henson et al. 2009). Secondly, developed country buyers need reliable suppliers of products that meet the required standards: there are many examples of developed country agrifood importers working closely with the supply

networks to meet new standards. Thirdly, there is scope for public policy to promote and support the development of more sustained and productive linkages along value chains that will facilitate the flows of resources and knowledge that will enable producers to improve their efficiency and product quality. Fourthly, the development of new standards may also provide opportunities for value addition and increased income for producers in developing countries: the simplification of information transmission through standards will facilitate product differentiation and add value to products. Clearly, standards can present opportunities as well as threats (UNIDO, 2010).

Accordingly to a study by Wageningen University, agro-food chains and networks play an increasingly important role in providing access to markets for producers from developing countries, and that companies in developing countries become integrated into geographically dispersed supply networks that link producers, traders and processors from the South with retailers and consumers in urban centres and in the North (Wageningen University, 2004).

CHAPTER 3 CAUSES AND IMPACTS OF SPS RELATED TRADE CONCERNS

A Causal Chain Analysis of South Africa's Ban on Kenya's Avocado Exports

3.1 Introduction

3.1.1 Background

The Republic of Kenya is located in the eastern coast of Africa, and covers a total landmass of 586,650 square kilometres. Only 8.1 per cent of the landmass is arable land on which crop production can be done to satisfy food security and income generation. The remaining land area is generally arid or semi-arid, suitable for livestock production and wildlife. There are also several inland water bodies –fresh water rivers and lakes on which inland fisheries activities are predominant. 6 per cent of Lake Victoria, the second largest fresh water lake in the world, falls in the Kenyan territory and provides a wealth of fresh water fish species, including Nile perch which is a major fish export commodity from Kenya. In addition, Kenya borders the Indian Ocean, which generates the country income from diverse economic activities such as marine fisheries and seaport services on exports and imports. With more than 40 per cent of Kenyans living on less than USD1.25 per day and with a Gross Domestic Product (GDP) per capita of USD862 and a Human Development Index (HDI) of 0.519 in 2012, Kenya is classified as a developing country ranked at 145 out of 185 (UNDP, 2013b).

Kenya is endowed with a wealth of agricultural resources on which to develop the agro-industries for income and job creation and integration into global value chains through trade. The horticultural sub-sector has grown significantly to become a major employer and source of government revenue. In the year 2010 the contribution to the income from the sub-sector was KES114.59 billion (US\$1.5 billion), and the value of horticultural

exports rose to KES77.7 billion (US\$971.4 million) (HCDA, 2010). Fruits and vegetables contribute a significant proportion of Kenya's agro-food exports and provide the means of livelihood for a majority of Kenyan small-holder producers. Avocado (*Persea americana*) is one of the most important export fruits grown in Kenya. In 2010, it contributed 62 per cent (by volume) of total fruit exports from Kenya amounting to 20.2 million kilogrammes earning the country KES1.72 billion (US\$21.5 million). Although the avocado subsector in Kenya is growing in importance, and production is increasing steadily annually, the market access challenges are also on the rise. Kenya's market share in high value markets in industrialized economies is reducing as most countries tighten their sanitary and phytosanitary (SPS) standards (World Bank, 2005) in the public and private sectors alike.

3.1.2 The Issue

In February 2007, the Republic of South Africa (RSA) withdrew all import permits for avocado imports from Kenya with immediate effect as a consequence of the occurrence and distribution of *Bactrocera invadens* in Kenya. According to South Africa Directorate of Plant Health, the amendment of import conditions was necessitated by the important quarantine status this organism has for RSA. Since then, Kenya has not been able to export avocado into the RSA. The RSA was an important market for Kenya's avocado between October and February (Edewa, et al., 2010). During this period Kenyan avocado exports to the traditional EU market are usually very low. If no action is taken, other high value markets may also tighten their requirements for avocado imports from Kenya. This study assesses the causes of South Africa's ban on avocado imports from Kenya and impacts on trade and development in Kenya.

Fruit flies are a major threat to horticultural industry in Africa owing to the damage they cause on fruits and vegetables, and the quarantine implications of the pest (Badii, et al., 2015). Numerous studies have been conducted on fruit flies in Africa (COLEACP-CIRAD, 2009; Ekesi & Bilhah, 2006; Lux, et al., 2003) yet there is limited knowledge among stakeholders on fruit-fly pest status, economic importance and control strategies (COLEACP-CIRAD, 2009; STDF, 2009). African fruit producers experience heavy losses due to poor quality and export market closures (Lux, et al., 2003). Since 2007 the African Continent has suffered a number of interceptions in the EU due to fruit fly (COLEACP-CIRAD, 2009). The rapid spread and devastating impact of *B. invadens* is a matter of serious concern in sub-Saharan Africa. The United States of America (USA) has slapped a ban on fruit imports from several countries in Africa (APHIS/USDA, 2009).

Bactrocera invadens is an invasive fruit fly and important quarantine pest with potential to affect fruit imports from Africa (Drew, et al., 2005). *B. invadens* is a harmful plant pest which spreads via host commodities imported from foreign countries where this pest is currently present. *B. invadens* is a fruit fly in the family of Tephritidae. This family contains a number of harmful plant pests of major agricultural concern, including the Mediterranean fruit fly. Adult fruit flies are capable of dispersing over several miles, adult females lay large numbers of eggs in their host fruit, which are rendered unmarketable by developing larvae. The spread of fruit flies worldwide has primarily been through movement of infested fruit in international trade and commerce. Given its polyphagous nature and widespread host range, management and control of this pest requires adoption of broader strategies (Ekesi & Billah, 2006) in order to manage it.

In Africa there are several species that attack fruits, vegetables and wild plant species. *Bactrocera invadens* (Diptera: Tephritidae), a fruit fly species native to Asia, was recorded for the first time on the African mainland in 2003 and has already become a pest species of major concern to fruit growers in the continent (Lux, et al., 2003). The species attacks a wide variety of crops including mango, guava, pumpkin, melon, tomato, citrus and cashew nuts. *B. invadens* has spread to at least 27 countries in Africa since its first detection in Kenya in 2003, and is known to attack at least 46 host plants, including many commercially grown crops and species indigenous to Africa (De Meyer, et al., 2010).

The level of diversity and common ancestry among several African populations collected across the invaded areas confirm the Asian origin of this pest. However, the results of the analyses support that invasion started in East Africa, where *B. invadens* was initially isolated (Khamis, et al., 2009). The detection of *B. invadens* in Kenya has led South Africa to ban avocado imports from Kenya. This calls for an urgent necessity to establish the extent and status of invasive flies in East Africa, the establishment of Pest Free Areas (PFAs) and Areas of Low Pest Prevalence (ALPPs) and research into the biology, ecology and appropriate post-harvest treatments to mitigate the effects of this pest.

Management of *B. invadens* generally takes the form of either an eradication programme or Integrated Pest Management (IPM) strategy (Lux, et al., 2003; Ekesi & Bilhah, 2006). Sterile Insect Technique (SIT) has been used in various parts of the world to manage this pest (Hendrichs & Hendrichs, 1998). Single management techniques are not effective for fruit-fly (Lux, et al., 2003; Allwood & Drew, 1997), but IPM offers the best option to improve economies of the production system (Allwood & Drew, 1997; Ekesi & Bilhah, 2006; COLEACP-CIRAD, 2009; IAEA, 2003; STDF, 2010).

3.1.3 Objectives of this Section

The main objective of this section is to establish the main causes and possible strategies to address SPS related interceptions on Kenya's agro-food exports. The specific objectives are:

- (i) To establish scenarios that led to South Africa's ban of Kenya's avocado exports.
- (ii) To provide a rapid assessment of the initial outcomes of the South African ban on Kenya's avocado exports.
- (iii) To find out the impacts of the South African ban on Kenya's avocado exports
- (iv) To make recommendations on flanking measures necessary to address the trade ban and open up new markets for Kenya's avocado exports

3.1.4 Questions to be addressed

- (i) What baseline scenarios prompted South Africa to withdraw import permits for Kenya's avocado?
- (ii) What were the initial outcomes of South African ban on Kenya's avocado exports?
- (iii) What impacts did the South African ban of Kenya's avocado exports have on trade and development
- (iv) How can Kenya ensure that the root causes of the ban are addressed sustainably?

3.2 Research Method

3.2.1 Principle

This study is conducted using a Causal Chain Analysis (CCA) methodology. CCA is a means of tracing the immediate or direct causes of an impact or problem back to its root causes. Often the immediate cause of an impact is not its fundamental cause. Tackling

direct causes may not solve the problem; tackling the root cause may solve more than one problem. CCA requires the development of conceptual models that represent the chain of cause-effect relationships in which *activities* lead to changes, *changes* lead to impacts, and *impacts* lead to *responses*. It is possible to trace both forwards and backwards linkages, and often deeper understanding can be achieved by doing both. The CCA consists of both quantitative analysis and more qualitative analysis and includes extensive stakeholder consultations.

The CCA provides a better understanding of causal relationships and how trade measures potentially impact on a sector, in economic, social, environmental, and institutional terms is useful in design of strategic options with clear flanking measures (preventative and mitigating measures). CCA provides a useful framework for organizing information that has been gathered and analysed as part of a sustainability impact assessment (Kleih & Lam, 2012). In the context of SPS standards, SIA of SPS measures can be conducted to understand potential implications of a SPS trade measure (and related notification) on trade and on social, economic, environmental and institutional development across the value chain; to prepare a response to a notification; to assist trade negotiators dealing with SPS measures; and to assess the impact a trade (Kleih & Lam, 2012)

3.2.2 Practical Validity of the Method:

The use of CCA methodology as part of the trade sustainability impact assessments (SIA) of trade measures (for example, SPS related import ban or rejection of consignments), is not new (George & Kirkpatrick, 2004). Since the WTO Ministerial in Seattle (1999), trade SIAs have become an important tool for the European Union (EU) to incorporate sustainability – a key concept in the trade policy of the EU – into the policy-making

process and particularly into trade liberalisation policies, such as Free Trade Agreements (FTAs) (Ecorys Consulting, 2010).

Preliminary and scoping phases for SIAs in the EU have traditionally focused on causal chain analysis (Torriti, et al., 2008). TSIA, which includes CCA as a part of the wider methodology was originally developed for the launch of the European Commission's SIA programme in 1999, and was subsequently further, adjusted during its application in the SIA Work Programme (Kirkpatrick & Lee, 2002; Kirkpatrick & Lee, 1999). While development of the SIA methodology has been spearheaded by the Impact Assessment Research Centre of the University of Manchester, it has since then been widely applied to assess the potential impacts of trade negotiations such as the WTO Doha Development Agenda (Kirkpatrick, 2005; Kleih, et al., 2006a; Katila & Simula, 2004; Schlegelmilch, 2004). Most recently the CCA methodology has been used in Kenya to assess the impact of EU import ban of Nile Perch imports from Lake Victoria (Edewa, et al., 2010), and a part of the toolkit developed by the Natural Resources Institute to support developing countries implement the SPS Agreement (Kleih & Lam, 2012; Lam, et al., 2012).

3.2.3 Existing Studies on the fruit fly

In a study commissioned by the Standards and Trade Development Facility (STDF) on mobilizing aid for trade for SPS-related technical cooperation in East Africa (Abegaz, 2007), fruit flies were identified among SPS constraints affecting Kenya's horticultural exports, with a recommendation to intensify efforts to build awareness on basic/good practice through regular programs, notably for small growers. According to STDF, fruit fly infestation has led to heavy losses in yields of fresh fruits across Africa due to reduction in quality and the quarantine status of *Bactrocera*, but the awareness of the

stakeholders along the fruit value chain about the economic importance and management of this pest is limited (STDF, 2009).

3.2.4 Application of the method in this study

The study was undertaken following the three stages as summarised in in *Figure 3-1* which shows the sequence of significant cause-effect relationships.

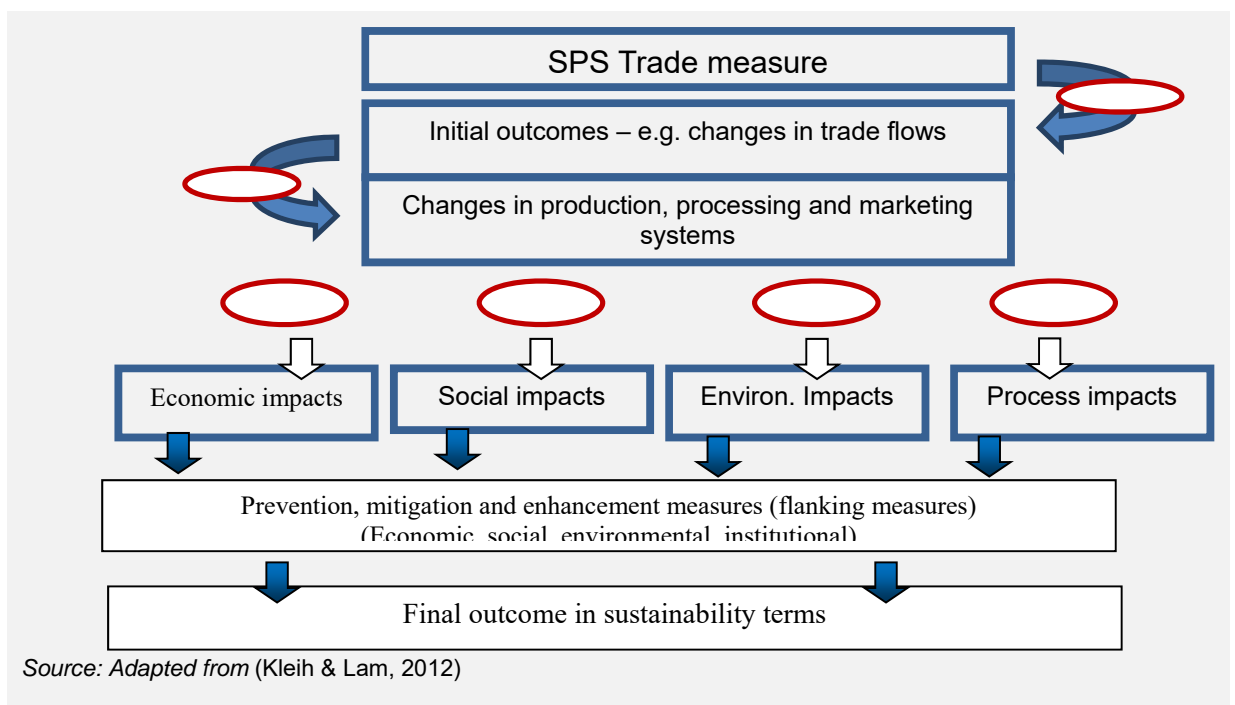


Figure 3-1: Schematic representation of Causal Chain Analysis (CCA)

Stage I: Planning the Assessment

This Stage involved determining the information sources, including key persons to be interviewed and secondary data sources.

Stage II: Conducting the Assessment

The assessment was conducted using a range of social science research techniques for data collection. The primary data was derived from both respondents from the public and private sectors. In the private sector, the different actors on the avocado value chain were interviewed. In the public sector, officials involved directly with regulatory controls of

the avocado industry were interviewed. In both cases, individual interviews as well as focus group discussions were held at respective centres of work. The study was conducted following the methodological steps below:

Step 1: Understanding the Baseline Scenario

Step 2: Assessing Initial Outcomes

Step 3: Assessment of Impacts: Social, economic, environmental and institutional

Step 4: Examining Flanking Measures

Step 5: Projecting Final Outcome

Stage III: Drawing Conclusions and Recommendations

The last stage of the CCA was to draw conclusions and recommendations that can be used by decision makers in the public and private sectors in Kenya for improvements or strengthening of the SPS compliance system in Kenya in support of agro-industry exports. The results are also intended to provide facts that would allow for science based arguments in future negotiations on the trade ban.

3.3 Findings and Discussions

3.3.1 Baseline Scenario

For many years, avocado (*Persea americana*) was one of the most important fruits grown in Kenya for household consumption due to its nutritive value. Later in the 1990s avocado consumption increased, making it a popular commodity in many municipal wholesale markets, groceries and local hotels. Because of its high oil content, industrial processing activities also emerged in the late 1990s, particularly for preparation of cosmetics and edible oils. Exports of fresh avocado started in the 1980s and were

increasing rapidly after 2000. In 2006 avocado represented around 17 per cent of the total horticultural exports from Kenya, with an annual average of 3-4 million standard 4 kg boxes (12,000-15,000 tons) and earning the country over KES850 million (over US\$ 11.4 million) (HCDA Annual Statistics, 2007).

3.3.1.1 Avocado Production before the Ban

Before the ban, smallholders formed the bulk of avocado producers in Kenya. Many of them owned less than 10 avocado trees which were rarely pruned. Around 85 per cent of Kenyan avocado was grown by smallholders and it was an important crop to rural communities and economies. With regard to general crop husbandry practices the smallholders knowledge was limited especially in pest and disease diagnosis and management. As such there were huge crop losses resulting from poor quality fruit. In terms of SPS management practices, smallholder production systems did not find pests and diseases as a major problem, but crop protection was considered a part of the broad Good Agricultural Practices (GAP) on the farm. The main considerations on harvested fruit were quality aspects rather than observance of food safety and phytosanitary requirements.

Government extension services to smallholder producers were ineffective owing to small number of government extension staff who could not currently reach out effectively to assist producers. There had been attempts to organize smallholders into functional producer groups for ease of provision of production and marketing of avocados. There were also a few large farms, owned or contracted by major exporters. In general, the area covered under avocado production was increasing and the production volumes were rising steadily. A survey of smallholder production in the main avocado production

district of central Kenya showed that acreage under avocados had increased from 320 hectares in 2002 to 625 hectares in 2007. *Figure 3-2* shows avocado production trends across the country between 2005 and 2007.

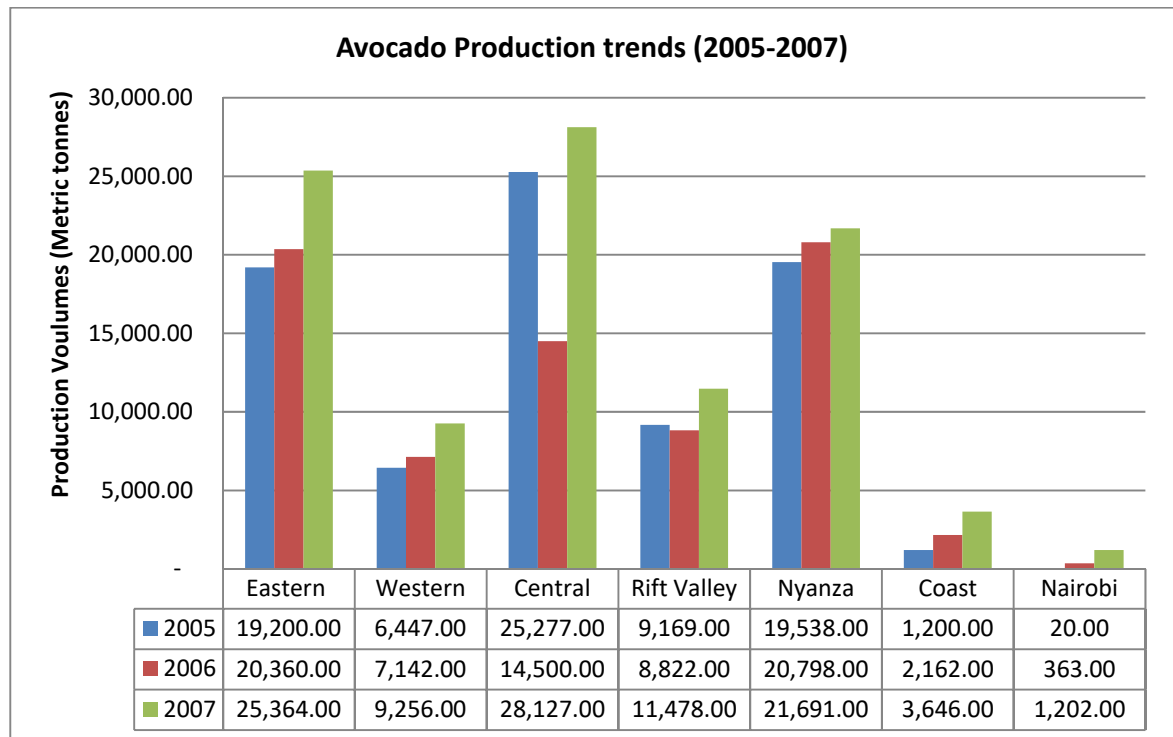


Figure 3-2: Avocado production in Kenya (2005-2007)

3.3.1.2 Avocado Marketing Situation before the Ban

The avocado marketing chain in Kenya was already complex by 2007, with many actors involved. Farm produce from smallholders was fed either to market linkage firms and individuals/middlemen who in turn delivered the produce directly to exporters, or to the domestic market. The domestic market took the form of wholesalers at the municipal markets. From wholesale markets the produce ended up with retailers at various grocery outlets, hotels or directly with consumers.

There were also a few industrial processors who had started crushing the fruit for edible oil and cosmetics. Industrial processors occasionally sourced their supplies directly from

wholesale markets. Overall, middlemen played a central role in the marketing of avocado within the country, and provided a useful linkage between smallholders and various domestic markets, as shown in *Figure 3-3*. There were no measures to control movement of produce to markets as part of domestic SPS controls, neither were there any official inspections prior to sale of produce at different markets.

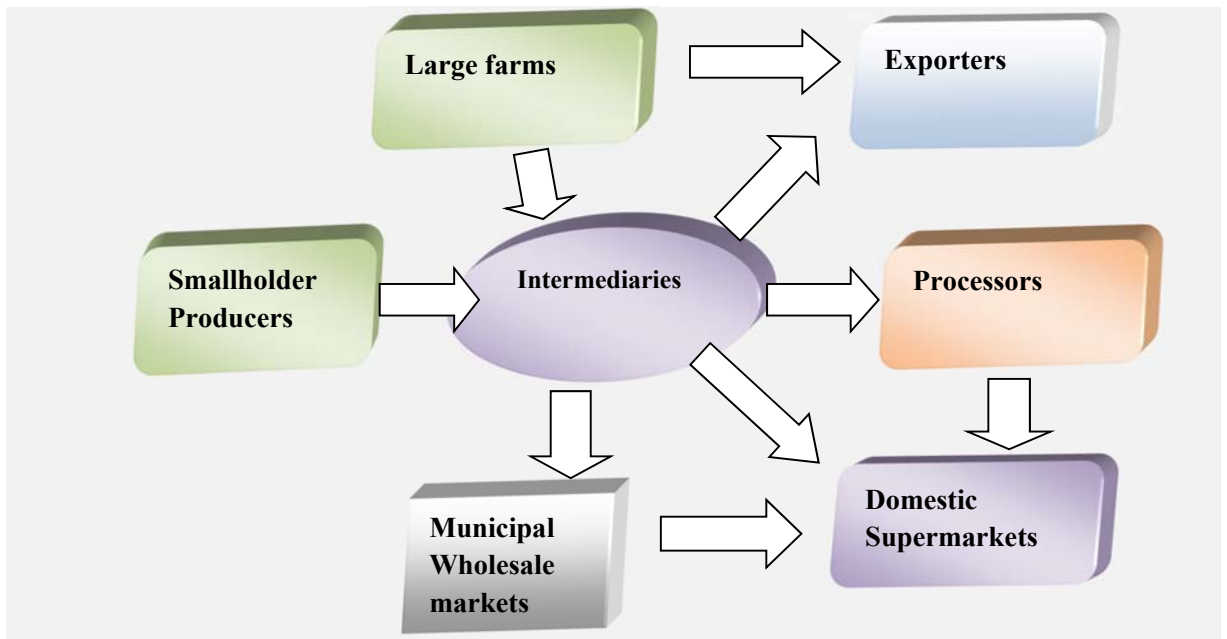


Figure 3-3: Avocado Marketing Channels in Kenya before 2007

Avocado Industrial Processing before the Ban

Before the ban, there were five industrial processors who processed ripe avocado fruits into edible oil or cosmetics. For this reason industrial processors used to buy specific varieties with high oil content, some of which are different varieties grown for fresh fruit exports. Although processors offered farmers an opportunity to sell selected varieties during periods of overproduction, the prices were generally low compared to the fresh fruit market, and therefore preference for avocado grown by farmers was towards varieties grown for fresh fruit export such as *Fuerte* and *Hass*, which are Guatemalan and

Mexican hybrids. The main considerations in avocado processing were quality aspects in terms of oil content and product development. Some establishments implemented the Hazard Analysis and Critical Control Point (HACCP) food safety management system. As there were periodic excesses of avocado supply to the domestic markets, the industrial processors did not have an organised supply side system that would ensure traceability and implementation of good agricultural practices upstream.

Avocado Exports before the Ban

The majority of the Kenya avocado crop was exported through six companies; East African Growers Ltd, Indu Farms Ltd, Kakuzi Ltd, Kenya Horticultural Exporters Ltd (KHE), Sunripe Ltd and Vegpro Ltd. Some had their own production farms but the majority relied on large numbers of small-scale outgrowers, each of whom have only a few trees.

Table 3-1: Export Data of Avocado for Ten Top Destinations (2005-2007)

COUNTRY NAME	YEAR 2005		YEAR 2006		YEAR 2007	
	Quantity (KGS)	FOB Value (KES)	Quantity (KGS)	FOB Value (KES)	Quantity (KGS)	FOB Value (KES)
France	10,450,375	531,148,440	8,945,128	358,208,666	8,159,449	418,792,424
Netherlands	1,255,635	83,202,257	851,159	82,567,833	2,952,308	158,752,492
United Arab Emirates	799,637	79,816,377	1,068,129	96,461,289	1,879,044	134,311,062
United Kingdom	526,526	33,767,360	847,162	48,247,037	868,025	52,247,396
Spain	171,780	32,428,480	146,280	36,751,557	621,950	50,135,743
South Africa	182,568	14,668,822	161,344	15,931,922	228,898	20,066,112
Saudi Arabia	75,966	5,951,992	151,654	7,333,576	195,913	17,875,706
Switzerland	42,040	989,418	287,040	9,510,019	0	0
Andorra	0	0	4,650	524,587	109,214	10,792,409
Belgium	59,700	3,020,132	44,168	6,734,291	32,080	2,410,637

Source: (HCDA, 2007)

Most of avocado that was exported was sourced from smallholder producers. However, this supply base posed various challenges in terms of quality, traceability and conformity

to standards which were becoming a requirement to various export market destinations, especially European market. Most avocados from Kenya were exported by sea, mainly to Marseilles, France, via the Red Sea.

The main export markets before the ban were mostly France, Holland, United Kingdom and Spain. Other markets included Germany, South Africa, and United Arab Emirates. *Fuerte* and *Hass* were the two main export varieties, but preference was shifting towards *Hass*. *Table 3-1* shows export data of ten top destinations for avocado from Kenya between 2005 and 2007. Prior to the ban avocado exports to South Africa were on upward trend. The South Africa was an important market for Kenya's second season avocado. The season ran from October to March, the time during European markets usually did not import from Kenya. Kenya's second season (October- February) avocados are not competitive enough in the European markets during this period because Southern European countries and other closer avocado sources offer cheaper alternatives. The trade ban was imposed in February 2007, but the avocado export volumes to South Africa had already hit over 200 tons in January and February alone. According to one leading exporter who had been exporting avocado to South Africa from 1993, the South African market was the main second season market from October to March. At the time of the ban, the exporter had shipped 240 tons over the 3 months period of October to December 2006.

National SPS System in place before the Ban

At the time of the ban in 2007, Kenya had already acceded to several international trade treaties/conventions including the World Trade Organization (WTO), Organization of Economic Cooperation and Development (OECD), the International Plant Protection

Convention (IPPC), the Cartagena Protocol on Biosafety, Codex Alimentarius Commission (CAC), World Organisation for Animal Health (OIE), International Seed Testing Association (ISTA), Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC). The challenge, however, was meeting SPS requirements of trading partners without unnecessarily impeding the movement of goods.

Although Kenya was already implementing the SPS Agreement, there was no national SPS policy. There were, however, many pieces of legislation most of them dating back to the pre-independence period in the years of the GATT rounds of trade negotiations. The Ministry of Trade and Industry was the National Notification Authority (NNA), but its functions were not well known to users both in the public and private sectors. There were three SPS National Enquiry Points (NEPs) which included the Department of Veterinary Services (DVS) for animal health, Kenya Plant Health Inspectorate Service (KEPHIS) for plant health and the Director of Medical Services (DMS) for food safety. Only KEPHIS was active as a NEP and participated in meetings of the WTO SPS Committee and IPPC. There were no national SPS coordination mechanisms such as the National SPS Coordination Committee, National Food Safety Coordination Committee.

The infrastructure for implementing the SPS agreement was rather weak. With an outmoded legislation and limited capacity for to provide SPS compliance services, there were already challenges in complying with SPS requirements of high value export markets, particularly the European Union (EU). In fact, between 1996 and 2002, the EU banned the importation of Nile perch from Kenya due to food safety concerns. Similarly, Kenya was not exporting meat to the EU and other destinations in the EAC region. As for

plant health, Kenya had not experienced major phytosanitary problems as yet. Several legislations of phytosanitary issues were being revised, and the Kenya Plant Health Inspectorate Service (KEPHIS) had already been designated as the NPPO and IPPC contact point.

3.3.2 Initial Outcomes

3.3.2.1 Lost Exports

At the time of the ban, volume of exports to South Africa was earning Kenya at least 2 per cent of total avocado revenue as demonstrated in *Table 3-2* below.

Table 3-2: Volume and value of Avocado Exports to South Africa (2005-2007)

	2005	2006	2007	TOTAL
Volume of Avocado Exports to S. Africa	182,568	161,344	228,898	572,810
Total Volume of Avocado Exports	13,654,450	12,553,729	15,115,748	41,323,927
per cent of Export Volume to S. Africa	1.3%	1.3%	1.5%	1.4%
Value of Exports to S. Africa (KES)	14,668,822	15,931,922	20,066,112	50,666,856
Total Value of Avocado Exports (KES)	793,003,162	666,943,311	872,421,646	2,332,368,119
% of Export Value to S. Africa	1.8%	2.4%	2.3%	2.2%

Source: (Edewa, et al., 2010)

In 2010, avocado export volumes from Kenya amounted to 20.2 million kilograms (2184 metric tons), earning the country KES1.7 billion or approximately US\$21.5 million (HCDA, 2011). It is, therefore, estimated that the presence of the invasive fruit fly, *B. invadens*, in Kenya has resulted in the ban of avocado exports to South Africa worth over KES400 million (US\$5 million) annually. This ban further threatens growth of the horticultural industry in Kenya as other important fruit exports from Kenya may soon be treated similarly by other markets.

On the micro level, individual exporters affected experienced significant losses both in quantities exported and total revenue generated. According to one leading avocado exporter contacted during the survey, the company lost a market they had maintained for 15 years due to the ban. In terms of volumes, the company lost a market of approximately 20 tons per week for 12 weeks- the company usually exported *Fuerte* avocado to South Africa weekly from October to December each year. This adds up to 240 metric tons worth of export volumes to South Africa lost each year due to the ban. With a FOB (free on board) price of US\$2 dollars per 4 kilogram carton, the company is losing at least US\$120, 000 (approximately KES9.6 million) annually. As this late season avocado is predominantly of *Fuerte* variety grown by smallholder producers, the ban resulted to immediate reduction in farm incomes.

Changes in Trade Flows

The South African market was a special market for Kenya to cover for South Africa's seasonal production lapse from October to March. The loss of exports to South Africa made it difficult to find alternative export markets. Kenya cannot export to the European Market (Kenya's most important export market) for second season *Fuerte* avocado for two reasons: during the period of September to February, Firstly, some European countries like Spain and Greece offer cheaper avocados for the EU market during that period. Secondly, the EU market for fresh avocado imports prefers *Hass* variety to *Fuerte*. Potential high value markets like the USA could not offer any alternative because the phytosanitary requirements to export to the USA are more stringent (APHIS/USDA, 2009).

Table 3-3: Kenya's Avocado Export figures for Year 2008

COUNTRY NAME	YEAR 2008	
	QUANTITY (KGS)	FOB VALUE (KSHS)
France	7,312,649	594,195,795
Netherlands	2,985,747	175,540,382
United Arab Emirates	1,929,031	117,449,564
Spain	1,513,860	133,083,552
United Kingdom	1,304,229	127,508,596
Saudi Arabia	217,536	23,013,014
Denmark	88,320	6,134,349
Egypt	51,689	5,976,455
Belgium	33,824	5,252,313
Ukraine	28,585	3,434,641
India	22,080	1,176,871
Bahrain	21,796	3,110,076
Andorra	15,530	1,138,023
Qatar	12,445	766,244
Kuwait	3,962	872,958
Burundi	2000	224,613
Aircraft & Shipstores	590	25,010
Singapore	360	68,787
Sudan	60	600
Somalia	7	150
TOTALS	15,544,300	1,198,971,982

Source: (HCDA, 2009)

Kenya's *Fuerte* avocados could not find an immediate alternative export market. Most *Fuerte* avocado was therefore distributed through domestic market channels, with high post-harvest losses because of excesses. As a result, many smallholders cut down their *Fuerte* trees and replaced them with Hass. In 2008, alternative markets emerged in the East African region (especially Burundi) and Asia (See *Table 3-3*). In the year 2008, India imported for the first time from Kenya over 22 thousand kilogrammes earning Kenya over 1 million Kenya shillings (over US\$15000). However, it should be noted that the opening up of these new markets was not specifically to absorb *Fuerte* variety. The

markets in the Middle East and the EAC region do not necessarily segregate on avocado varieties, but nevertheless provided an alternative outlet to the *Fuerte* variety.

Changes in relative prices

As a result of the ban changes in prices were evident, especially at the farm gate and due to focusing mainly on the domestic market to absorb *Fuerte* variety. Forces of supply and demand further pushed down the prices at the domestic markets due to oversupply. The industrial processors and wholesale markets pushed down their buying prices for *Fuerte* avocado fruits at between 5 and 7 shillings per kilo. The price from exporters before the ban was approximately 1 dollar per kilo of fruit (i.e. KES70 per kilo).

Farm-gate prices for Grade 1 avocado which normally ranged from 0.50 to 2.50 Kenya shillings per fruit for avocado destined for domestic market depending on fruit size, variety and season rarely exceeded 1.5 Kenya shillings after the ban. Farm gate prices for fruit destined for export usually ranged from 1.50 to 3.50 Kenya Shillings for *Fuerte* variety and 1.00 to 4.50 Kenya shillings for *Hass* variety. The price of a single fruit of *Fuerte* went down to between 0.5 Kenya shilling down from 3.50 just before the ban.

3.3.2.2 Changes in Production, Processing and Marketing Systems

The avocado production system changed significantly following the ban. Although the acreage under smallholder avocado production did not reduce following the ban, many smallholders converted their avocado orchards from *Fuerte* to *Hass*, which is the preferred variety for the EU market. As *Fuerte* trees were cut down the resultant sprouts from the *Fuerte* stamps were grafted with *Hass* variety. Smallholders were regrouped either by the Ministry of Agriculture or by exporting companies.

The six leading exporters, who usually operated without following up strictly on the source of their avocado supplies, pulled out from smallholders whose production was predominantly *Fuerte*, but started setting up organized production systems with smallholders for the *Hass* production. They also provided technical extension personnel to contracted out-grower schemes to supervise their production and marketing system. In some cases, the exporters adapted the use of approved suppliers who were required to understand the safety and quality specifications for raw material supplies.

There were at least five industrial processors in the country at the time of the ban. They experienced increased raw material supply of *Fuerte* avocado, which has been found to contain over 20-25 per cent oil on weight basis when fully mature and ripe. Because of its high oil content *Fuerte* avocados are also preferred for processing of edible oil or cosmetics. *Fuerte* is preferred for larger scale processing as its oil is golden in colour compared to oil from other varieties such as *Puebla* which is dark brown in colour. Overripe fruits in the wholesale markets and those rejected from fresh fruit exports also ended up in the industrial processing lines.

As for the fresh fruit exporters' pack-houses, there were no changes in exporter practices for post-harvest handling of avocados after the ban. Their operations at the pack-houses continued as it was before, mainly in observance of hygiene and food safety and quality requirements of their overseas markets.

Most *Fuerte* avocado production after the ban was sold in the domestic markets, which are dominated by middlemen (also referred to as brokers). Use of middlemen became prevalent in order to access the limited domestic markets which have been growing over the years as many people get to know different ways of utilizing the avocado. The main

domestic markets include open municipal markets (wholesale markets) which then sold the produce to various retail outlets including supermarkets, groceries, hotels, restaurants and various learning institutions.

In the main avocado production regions, there were at least three market linkage firms serving over 21,000 smallholder producers in the main avocado producing regions before the ban. They were a useful link to major exporters and industrial processors before the ban. However, their role was taken over by middlemen after the ban, as most *Fuerte* fruit was destined for the domestic market. This left the smallholder producers in a vulnerable state because these new market arrangements did not provide for formal contractual engagement of producers or assurance of a guaranteed market for farm produce.

3.3.3 Impacts of the Ban

The decision by South Africa to withdraw import permits for all avocado imports from Kenya had diverse impacts for trade and development in Kenya. The impacts were felt at local level (producer and enterprise level) and at national level (institutions). Local level impacts are described below under Sections 3.3.3.1 to 3.3.3.3 while institutional impacts at the national level are described under Section 3.3.3.4.

3.3.3.1 Economic Impacts

The economic impacts of the ban are summarised in *Table 3-4* below. The main economic impact was the direct loss of incomes and employment for farms that were linked directly to exporters selling *Fuerte* variety to South Africa during the second season. Kenya also lost an important avocado market. There have also been changes in the production and marketing systems that have reduced farm incomes.

Table 3-4: Economic Impacts of Avocado Import Ban by South Africa

Impact Category	Impact Indicators	*
Real Incomes	Farm-gate prices reduced from KES 3.50 to 0.50 to 1.00 per fruit. At an average yield of 2500-3000 fruits per tree per year, the loss due to reduced incomes ranges from KES5000 to 8000 (US\$60-100) per tree per year.	▼
	Middlemen (brokers) activity increased as the main marketing agents, but they suffered losses due to post-harvest deterioration of fruits and uncertainty in prices in the domestic markets.	△
	For produce diverted to domestic markets, oversupply led to high post-harvest losses, thus the industry lost income worth several millions of shillings.	▼
	Exporters lost a prime market which was important at times when the main European markets are not available. One leading exporter lost a market that took nearly 15 years to establish and at export volume of at least 200 metric tons per season.	▼
	It is estimated that the presence of the invasive fruit fly, <i>B. invadens</i> , in Kenya has resulted in the ban of avocado exports to South Africa worth over KES400 million (US\$5 million) annually.	▼
	This ban further threatens growth of the horticultural industry in Kenya as other important fruit exports from Kenya may soon be treated similarly by other markets.	▼
Employment	At least 21,000 smallholder producers who were participating in production of <i>Fuerte</i> avocado for exports either cut down their orchards or stopped avocado production. This led to loss of employment for such producers, including casual labourers who worked on those farms. It is estimated that 30,000 to 50,000 seasonal labourers lost their jobs.	▼
	The 3 market linkage firms which provided marketing services for produce from smallholders wound up their businesses because it was no longer viable to run their businesses profitably. This led to loss in	▼

Impact Category	Impact Indicators	*
	jobs for their employees.	
	Some additional jobs were created within the processing plants. A leading industrial processor of avocado in Kenya employed 10 additional workers to work on a new Fuerte processing line which had an assured raw material supply.	Δ
	The main avocado exporters, who would usually hired 20-50 seasonal workers within their pack-house to work on <i>Fuerte</i> avocado for the South African market no longer absorbed additional workers.	▼
Fixed Capitalization	Smallholder producers cut down their <i>Fuerte</i> orchards, with the majority converting them either to orchards of <i>Hass</i> by top-working grafting technique, or by diversifying into other farm enterprises.	Δ ▼
	Exporters started sub-contracting medium scale producers (with at least 20 avocado trees) and organized smallholder producer groups for easy management and set up of production systems. They also worked with approved suppliers who have invested in quality control and transport systems	Δ ▼
	Some industrial processors diversified into new processing line for <i>Fuerte</i> avocado. One leading industrial processor invested in a line that processes 3 tons of <i>Fuerte</i> avocados per day.	▲

Key

–	Non-significant compared to base scenario	▲	Positive major significant impact	∇Δ	Minor positive and negative impacts
Δ	Positive minor significant impact	▼	Negative major significant impact	Δ▼	Minor positive and major negative
∇	Negative minor significant impact				

3.3.3.2 Social Impacts

There were several social impacts as a consequence of the ban, including on poverty, health, education, food security and equity. The most immediate impact was loss of income needed for livelihood support, which in turn led to several social challenges. The fact that the largest proportion of avocado is produced by smallholder producers, the ban

effectively worked towards their exclusion from global agro-food chains, which goes against the higher global goal of poverty reduction through sustainable and inclusive development. The social impacts of the ban are summarized in *Table 3-5*.

Table 3-5: Social Impacts of Avocado Import Ban by South Africa

Impact Category	Impact Indicators	*
Poverty	<p>For majority of smallholder producers in the main avocado growing regions, <i>Fuerte</i> avocado production was the main productive activity providing direct employment for farm families, especially women. The ban led to loss of incomes, poor livelihood and increased poverty. This is especially because alternative crops did not offer better options for income generation, and conversion of orchards to <i>Hass</i> type would take several years to yield a crop.</p>	▼
Health and Education	<p>Loss of exports meant loss of foreign income for the country. The lost contribution to the national income from the South African market is estimated to be about KES400 million, an amount which if ploughed back to the avocado growing region would promote development, through investments in education, schools and extension services.</p> <p>Overall, the impact of the ban in terms primary healthcare and primary education is difficult to quantify due to mixed income flows from different sources. Some smallholders depend solely on incomes from their agricultural activities on farm for health support and payment of school fees. The ban caused pressure on other farm enterprises to meet these basic needs.</p> <p>Training and private extension services provided by the market linkage firms ended with the ban, because the firms wound up their operations in the avocado growing region.</p>	<p>▼</p> <p>∇</p> <p>∇</p>
Equity	<p>Avocado being a tree crop is mainly a man's crop due to husbandry practices required. Alternative enterprises are generally in vegetable production. This skewed farm employment and incomes towards women, as the youth and men sought alternative engagement, especially motorcycle taxi services.</p> <p>The emergence of organized production and market systems linked to exporters in fruits and vegetables alike has given women opportunity in farm production decision making process.</p>	<p>∇</p> <p>∇Δ</p>

3.3.3.3 Environmental Impacts

As a replacement for avocado, many smallholder producers have embarked on alternative commercial crops. Intensive agricultural practices associated with commercial vegetable production have placed more pressure on smallholder plots now calling for increased use of inorganic fertilizers and irrigation. In addition, commercial vegetable production utilises various plant protection products that may interfere with the environment through contamination of water bodies or interference with biodiversity. Over time such practices may not be sustainable due to high cost of production and environmental degradation.

Table 3-6 summarises the environmental impacts of the ban.

Table 3-6: Environmental Impacts of Avocado Import Ban by South Africa

Impact Category	Impact Indicators	*
Natural resources	The ban slowed down the expansion of acreage under avocado production, and shifted to other farm enterprises as well. Shift towards commercial vegetable production created need for a reliable supply of irrigation water, which has impacted negatively on natural water sources.	∇
Environmental Quality	There was only minimal pesticide application on <i>Fuerte</i> avocado through private service providers who also provided market linkage. With increased alternative crop enterprises and the withdrawal of private service providers providing crop protection services, pesticide usage on avocado has reduced. On the contrary pesticide usage has increased in an unsupervised vegetable production system. This is likely to pollute the environment especially soil and water through poor pesticide waste disposal practices.	∇Δ
Biodiversity	The increased vegetable production practices have put pressure on available land leading to disappearance of soil fauna. Natural flora including indigenous trees, grasses, herbaceous plants and shrubs drastically reduced with increased land use. Besides, the increased usage of chemical fertilizers and pesticides associated with commercial vegetable production systems is likely to create further imbalances in natural ecosystems, and an escalation of resistant insect pest species.	∇

3.3.3.4 Institutional Impacts (Macro-level)

Since the avocado ban in 2007 there have not been significant changes in SPS policy and institutional environment and set up in Kenya. Although a number of steps have been taken to address the ban, the institutional environment and arrangements have remained largely the same as before the ban. *Table 3-7* summarises the institutional impacts of the ban on trade and development in Kenya.

Table 3-7: Institutional Impacts of Avocado Import Ban by South Africa

Impact Category	Impact Indicators	*
Consistency	<p>The ban has not pushed Kenya to develop an overarching SPS policy or a revision of the phytosanitary regulatory framework. Revision of SPS legal framework after the ban was a result of the need to develop a harmonized regional SPS framework as a regional integration requirement.</p> <p>The strengthening of phytosanitary regulatory framework before and after the ban has not been necessarily inspired by need to address the trade ban by South Africa. On the country, the response has been in cognizance of international trade agreements and maintenance of main agro-food export markets, in particular the EU.</p> <p>Some of Acts of Parliament developed in the pre-independence period and some subsidiary legislation have been revised over time (before the ban) but are yet to take full cognizance of provisions of international trade agreements to which Kenya is a contracting party.</p>	<p>–</p> <p>Δ</p> <p>–</p>
Institutional Capacity	<p>The Ministry of Trade is the National Notification Authority (NNA) and the Kenya Plant Health Inspectorate Service (KEPHIS) is the National Enquiry Point (NEP) for phytosanitary matters. These arrangements were set up before the ban in compliance with the SPS Agreement. Issues of the ban have not followed this institutional arrangement.</p> <p>Kenya regularly participates in meetings and activities of WTO SPS committee and International Plant Protection Convention (IPPC). The ban has not been formally discussed either at the WTO SPS committee or IPPC meetings.</p> <p>Kenya set up a national SPS coordination committee in September 2008, but this was not necessarily in response to the ban. The national SPS coordination committee has not formally discussed the avocado trade ban in its regular or ad hoc meetings.</p> <p>High level bilateral negotiations between Kenya and South Africa have taken place after the ban. However, the negotiations later followed diplomatic</p>	<p>–</p> <p>–</p>

Impact Category	Impact Indicators	*
	<p>procedures led by the Ministry of Foreign Affairs rather than Ministry of Trade. Bilateral negotiations have rarely involved technical experts in SPS matters.</p> <p>Several meetings at technical level have been held after the ban, but have in most cases failed to address the problem because of divergent opinions on the ban between Kenya and South Africa. Delegations from Kenya for the technical meetings have been incomplete in terms of relevant representation by phytosanitary and trade experts.</p> <p>Efforts to address the fruit fly problem after the ban were initially fragmented and not well coordinated. The Kenya Task Force on Horticulture (KTFH) is currently the sole sub-committee on phytosanitary issues. The Secretariat of the KTFH is based at Kenya Plant Health Inspectorate Service (KEPHIS). The functions of the KTFH are limited to the horticultural sub-sector and the activities are not limited entirely to phytosanitary agenda but cover broad sectoral matters. For this reason the Kenya Task Force on Fruit Fly Control (KTFFC) was established to deal with the increasing menace of fruit flies on major export fruit crops such as mangoes and avocados.</p> <p>KEPHIS is Kenya's National Plant Protection Organization (NPPO) in line with the IPPC requirements. Most correspondences on the fruit fly problem and coordination of meetings to address the avocado trade ban have been conducted through KEPHIS.</p> <p>KEPHIS is the centre of phytosanitary excellence (COPE) for the COMESA region. The centre offers training in international standards for phytosanitary measures (ISPMs) and regulatory controls. Fruit fly control is one of the important topics the centre is concerned about.</p> <p>Regulatory measures to address the problem of the ban along the value chain have not yielded a positive result. International standards for phytosanitary measures (ISPMs) and guidelines to address the fruit fly problem through a systems approach have not been sufficiently implemented to address the fruit fly problem. KEPHIS has set up surveillance traps in avocado production areas and has introduced routine surveillance as part of an early warning system for <i>B. invadens</i>. The early warning system is managed centrally through a GPS (Global Positioning Satellite) system.</p> <p>KEPHIS has conducted several consultative meetings with industry and other government agencies and came up with an action plan toward dealing with the problem. Training sessions have also been conducted for both government and industry. Industry has willingly supported surveillance studies of <i>B. invadens</i>.</p>	<p>Δ</p> <p>Δ</p> <p>Δ</p> <p>▲</p> <p>Δ</p> <p>▲</p> <p>Δ</p>

Impact Category	Impact Indicators	*
	<p>Leading exporters have put in time and human resources in support of the surveillance activities.</p> <p>Role of scientists from research institutions such as the Kenya Agricultural and Livestock Research Organization (KALRO), International Centre for Insect Physiology and Ecology (ICIPE) became increasingly recognized, and has been included the public-private partnership arrangements to address the ban.</p> <p>Several technical assistance programmes to address SPS weaknesses in general and develop phytosanitary capacity in particular, have been implemented in periods before and after the ban, but prospects that the ban will be lifted in the near future are still far away.</p>	<p>▲</p> <p>▲</p>

Key

–	<i>Non-significant compared to base scenario</i>	▲	<i>Positive major significant impact</i>	∇Δ	<i>Minor positive and negative impacts</i>
Δ	<i>Positive minor significant impact</i>	▼	<i>Negative major significant impact</i>	Δ▼	<i>Minor positive and major negative</i>
∇	<i>Negative minor significant impact</i>				

3.3.4 Flanking Measures in Place to Address the Avocado Trade Ban

Several steps have been taken both by the public and private sectors to address the *B. invadens* problem in order to restore avocado trade with South Africa. A number of bilateral meetings have taken place to discuss possible means of lifting the ban. However, the onus remains with Kenya to demonstrate that the production and trade of avocado does not create opportunities for spread of *B. invadens*. The problem has called for an intersectoral approach to develop lasting solutions, but the interventions so far have not been adequate enough to convince South Africa to lift the ban. In addition there have been public private partnerships aimed at providing a wholesome approach to dealing with the problem, particularly through technical assistance programmes. *Table 3-8* summarizes interventions carried out in Kenya in response to the ban.

Table 3-8: Matrix of Flanking Measures to Address Avocado Ban

Measures introduced	Prevention	Mitigation	Enhancement
Economic	Conversion of <i>Fuerte</i> orchards to <i>Hass</i> as an alternative export market variety	New pest control programmes at farm level Cultural Practices such as fruit collection Fruit fly trapping in key avocado producing regions in the country	Training of producers on good agricultural practices and how to convert orchards through grafting techniques Funding to support on-farm fruit fly control Brokers/ Middlemen have invested in supply systems and being used by exporters as approved suppliers
Social	None	Programme to organize producers into produce marketing organizations were introduced to mitigate against market failures	Farmer field days both by Government (through HCD) and private sector through Fresh Produce Exporters Association (FPEAK) to create awareness and disseminate new technologies and good husbandry practices
Environmental	None	None	None
Institutional	National SPS Coordination Committee established in 2008 Training and equipping the National Enquiry Point for phytosanitary issues based at KEPHIS. Technical assistance programmes have arisen to strengthen Kenya's SPS Control System	Negotiations led by Ministry of Trade and later Ministry of Foreign Affairs; Tightening of product inspections at the port of exit; Establishment of Taskforce on Fruit Fly Control Funding from Government (Horticultural Crops Directorate –HCD) map out feasible control strategies	Regular Training of phytosanitary inspectors on pest diagnostics. Stronger engagement of government and private sector stakeholders in a public-private arrangement

In general, the government of Kenya, together with stakeholders in the avocado value chain are developing a number of technical and institutional measures to address the fruit fly problem. There are similar efforts within the East African region to help prevent situations similar to the South Africa ban from occurring in the future.

3.3.4.1 Technical Measures

Kenya is undertaking a number of technical measures to address the fruit fly problem. First, jointly with the International Centre for Insect Physiology and Ecology (ICIPE), Kenya is developing biological control using parasitoids and cost-effective food baits which have been researched at ICIPE and elsewhere. ICIPE is also conducting trials jointly with the Kenya Plant Health Inspectorate Service (KEPHIS) and major exporters on cold treatment and post-harvest heat treatment of avocado.

There are efforts to develop a production protocol on avocado that addresses all SPS related issues at primary production level. The protocol will include specific technical aspects on management of *B. invadens* not only on avocado, based on the International Standard for Phytosanitary Measures (ISPM) 26 developed by the IPPC (FAO, 2006). KEPHIS plans to develop surveillance programmes for *B. invadens* and other quarantine pests. A number of traps have already been piloted across the avocado producing regions in Kenya.

Kenya is developing a multi-year fruit-fly control programme using a multi-stakeholder approach with the following components: eradication programme; promotion of good agricultural practices; adoption of integrated pest management (IPM) principles; establishment of areas of low-pest prevalence for fruit flies, and pest –free areas in accordance with ISPM 22, 26 and 30; and further research with regard to *B. invadens* management.

3.3.4.2 Building SPS Capacity: Institutional Measures

Implementation of technical measures should be accompanied by development of a supportive SPS policy (Lam, et al., 2012). To ensure that technical measures to fight *B.*

invadens are implemented successfully and to reduce further risk to the horticultural industry a structured approach to SPS capacity building is needed. As a first step, a Public-Private Partnership can hugely be beneficial in addressing SPS threats. This is because the strong interest by private sector in business is justifiable enough to push government to provide necessary institutional support for trade facilitation and compliance with SPS standards.

3.3.4.3 Strengthen SPS Coordination Mechanisms:

Kenya established the National SPS Coordination Committee in 2008 to facilitate coordination and communication among stakeholders. The committee has provided useful linkages with the WTO SPS committee and facilitated bilateral talks with South Africa on the avocado ban. Kenya has also established the National Horticulture Task Force which discusses on a regular basis matters affecting the horticultural industry and has developed intersectoral collaboration to address the challenges identified.

3.3.5 Net Impacts

Prior to the ban, the avocado industry was growing in importance and export volumes were on the rise. The ban has affected the area covered under avocado production, particularly of *Fuerte* variety as producers had an alternative variety- *Hass* for export. However, the ban had a negative impact because there was no alternative export market for *Fuerte* while domestic market was saturated leading to high post-harvest losses and low incomes. The loss in terms of real incomes to individuals, companies and the country (in form of lost exports) as a result of the ban is enormous. The greatest impact of the ban, therefore, is loss of real income. The ban has also had net negative impact on

employment, especially for smallholder producers. There were at least twenty thousand smallholder producers who were involved in *Fuerte* avocado production before the ban.

The impact of the ban on the social set up was negative. Most notable social was widespread poverty at farm level caused by reduced farm incomes and employment, leading to poor livelihoods. This is because the majority of producers (at least 85 per cent) were smallholders without better alternatives to avocado enterprise. At the macro-level, loss of export markets leads to less exports and low earnings by the country. This affected the capacity of the government to provide basic services such as primary health care and education. Moreover, the flow of earnings from export markets to the regions producing avocado was severed.

The impact on environment was minimal, save for the cutting down of *Fuerte* orchards. This is because a shift to alternative crops did not necessarily change agronomic practices significantly. As vegetable production is more intensive and requires more use of plant protection products and fertilizers, this would create pollution from pesticides in uncontrolled application. Nevertheless, there was vegetable production in a mixed cropping system prior to the ban, and most orchards were converted into *Hass* type. In addition, an increase in pesticide usage on new orchards is unlikely to be for fruit fly control.

The impact of the ban to institutional set-up of the SPS control system in Kenya is positive, as it has brought about increased focus on the country's SPS compliance infrastructure. While much of the improvements in the national SPS system are not a direct result of the ban, there are many lessons and examples being drawn from the ban for decision makers. In particular, the need to bring together the public and private sectors in the fruit fly intervention strategies has been expressed. Interventions from the

government, private sector and development partners have been explored, but have not helped in lifting the ban or reducing its negative effects because broad strategies required to control or eradicate *B. invadens* have not been adopted. Indeed there are likely inadequacies in the current institutional and capacity to comply with international requirements for market access and to respond to phytosanitary emergencies. There is need to strengthen the regulator’s technical capacity, competence and resource allocation, as well as other various factors including development of an umbrella SPS policy and a coherent legal institutional framework.

3.3.6 Final Outcome

Table 3-9 presents different scenarios of the final outcome of the ban. In general, the prevention, mitigation and enhancement measures put in place to address the ban are unlikely to solve the *B. invadens* problem in the short-term.

Table 3-9: Projected Final Outcome of the Avocado Trade Ban due to *B. invadens*

Scenario	Without Negotiations	With Negotiations
With current Flanking Measures	Very unlikely that ban will be lifted; Other importing countries at risk also likely to impose bans	Partnership programme on intervention is possible; Other importing countries at risk also likely to impose bans
With additional effective flanking measures	Less likely that ban will be lifted; Kenya will maintain existing markets Kenya less likely to suffer similar bans	Ban will be lifted; but <i>Fuerte</i> avocado export volumes to South Africa will be less than previous volumes; Exports to new markets (e.g. USA) possible; Other fruits exports likely to get into high value markets; Kenya can open up new markets

Source: Author

Firstly, with current flanking measures and without negotiations, the lifting of the ban would be likely. Without additional measures other countries at risk of *B. invadens* are likely to slap the ban on Kenya. In 2009, the United States of America (USA) issued a Federal Notice to stop fruit importation from countries with risk of fruit flies from January 2010. Kenya was listed among countries with risk of *B. invadens* and, therefore, cannot export avocado to the USA.

Secondly, even with negotiations, the current state of flanking measures is unlikely to address the concerns that led to the ban. Thirdly, it is necessary to introduce measures that would address the risks of spread of *B. invadens* through trade. However, any interventions need to be communicated to South African Authorities and reviewed bilaterally between the two countries. Lastly, considering the polyphagous nature of the pest and its spread, additional measures should be introduced to control the pest or arrest its spread. While it is necessary to advance negotiations in order to lift the ban, no positive results should be expected without direct interventions to eradicate or arrest the spread of *B. invadens* in Kenya. Major investments are required in the public and private sectors to upgrade avocado production systems and the institutional environment for management of quarantine pests.

3.4 Conclusion

South Africa withdrawal of import permits for avocado from Kenya was in response to reports about the occurrence and spread of *B. invadens*, an invasive fruit fly, in Kenya. Because of its characteristics and economic importance, *B. invadens* is classified as a quarantine pest. This action was a precautionary measure by South Africa to prevent introduction of the pest into its territory to the peril of the very important fruit industry.

The onus was on Kenya to demonstrate through effective fruit fly control programmes that avocado exports would present no phytosanitary risks to the South Africa's giant fruit industry. However, it has taken Kenya more than 5 years to address the *B. invadens* problem, an indication of underlying weaknesses in Kenya's SPS control system, particularly in phytosanitary matters.

The baseline scenario was one with increasing avocado production among smallholder producers in Kenya and rising export volumes to South Africa. The foreign exchange earnings from avocado exports to South Africa were on a rising trend. South Africa was the main export destination for second season avocado exports from Kenya. At the micro-level, smallholder producers provided more than 80 per cent of the total farm production, with employment to more than 20,000 farm families and their workers. There were emerging market outlets for avocado in the domestic domain, which was open municipal markets, wholesalers and industrial processors. The SPS institutional framework was in place, particularly for phytosanitary matters, but was not well coordinated and the capacity to rapidly respond to phytosanitary threats like that posed by *B. invadens* was inadequate.

The initial outcomes of the ban include loss of exports worth KES400 million (US\$5 million) annually. Although the amount of money lost annually appears small, it points all at potential bigger problems in sectors and markets where big volumes are concerned. The impacts are particularly high if high value markets are lost, which may be difficult to regain. The main exporters lost important export markets which had taken them many years to establish. The ban also caused changes in the production and marketing systems. Overall, there was a strong focus on domestic market outlets and heavy post-harvest

losses occasioned by excessive supply of avocado. As such the ban had high negative economic impacts throughout the key value chain actors. The social impact of the ban was aggravation of the poverty situation in the main avocado producing regions. However, the ban has not impacted significantly on the environment and the institutional set up in Kenya. In fact, most improvements in the SPS institutional structure in Kenya are not a direct consequence of the ban, except for the task force on fruit fly control.

Measures put in place to address the *B. invadens* problem have not been effective enough to eradicate the fruit fly or to manage the pest in ways that do not pose risk to international trade. While it is very necessary to develop a phytosanitary protocol to assist producers and other value chain actors to control the pest within their scope, broader strategies involving integrated measures in a systems approach are required. In this regard, the flanking measures to prevent and mitigate against the pest, as well as institutional enhancement measures put in place are inadequate to solve the *B. invadens* problem in Kenya. There are, however, efforts to come up with coordinated approaches to fruit fly control in Kenya, but more time and resources are required to realize positive a result.

Under the prevailing circumstances, whether or not negotiations take place the solution to the *B. invadens* problem is in the future, with long-term avocado trade implications for Kenya. The import ban by South Africa on avocado from Kenya is likely to persist longer than initially anticipated. In addition it is expected that there will be increasing concerns on the capacity of Kenya's SPS control system and its ability to promote safe international trade. This in itself will put Kenya in a delicate position in keeping existing agro-food markets abroad or in opening up high value export market destinations.

3.5 Recommendations

Supply-Side Interventions

1) Create awareness in SPS standards in general and fruit fly control in particular

The SPS Agreement encourages WTO member countries to base their phytosanitary measures on international standards, guidelines or recommendations developed by the relevant international and regional organizations operating within the framework of the International Plant Protection Convention (WTO, 1994a). The International Standards for Phytosanitary Measures (ISPMs) require contracting parties to conduct public awareness programmes in the establishment of pest free areas for fruit flies (FAO, 2006) and in establishment of areas of low pest prevalence for fruit flies (FAO, 2008).

2) Kenya should implement integrated measures in a systems approach for fruit fly control

A systems approach requires the integration of different measures, at least two of which act independently, with a cumulative effect (FAO, 2001). The rationale is that where an individual measure may not be sufficient, there may be gains in efficacy through a systems approach (Vapnek & Manzella, 2007). This offers more flexible pest risk management, allows for more proportionate response to pest challenges, and shifts more responsibility to producers and traders (Whittle, et al., 2010).

Institutional Measures

3) Kenya should review phytosanitary legislation and strengthen phytosanitary regulatory controls for B. invadens

Phytosanitary legislation serves several purposes, most importantly enabling countries to protect their agricultural resources and natural environment from the introduction or spread of pests (FAO, 1997a). Phytosanitary legislation defines the institutional framework necessary for effective plant protection and improves the efficiency and effectiveness of national authorities toward this end (Vapnek & Manzella, 2007). It also allows countries to implement their international obligations with a view to facilitating international trade in plants and plant products and fostering cooperation and research in the field of plant protection.

4) Kenya should strengthen institutional frameworks for SPS control and management.

The institutional framework for phytosanitary controls in most developing countries is fragmented, and the responsibility for phytosanitary controls and the application of phytosanitary measures against the introduction and spread of harmful organisms are shared by a number of institutions (Waite & Gascoine, 2003). Such fragmented systems in conflicting institutional mandates may cause problems in regulatory controls and severely limit export opportunities for agro-food exports from developing countries (Wilson & Otsuki, 2001).

The government should support the establishment of SPS standards compliance infrastructure and provide framework conditions that facilitate production and exports of agro-industry products. This requires full implementation of the SPS Agreement as well as regional SPS framework conditions in the East African Community (EAC) and Common Market for Eastern and Southern Africa (COMESA). There is need to build a national capacity for implementation of SPS Agreement, and would include, for example, awareness creation and training on SPS standards, developing a facilitative legal and

regulatory framework, establishment of conformity assessment infrastructure for testing, inspections and certification of products.

5) Strengthen Public-Private Partnerships in fruit fly control programmes.

By refocusing efforts by all actors in the avocado value chain in pest control programmes, it would be possible to achieve *B. invadens* eradication through implementation of phytosanitary standards. Because the activities of such pest control programmes can be diverse, all players should be adequately coordinated. It is therefore necessary to strengthen SPS coordination mechanisms in the country. The national SPS coordination committee should be strengthened and allowed to play a leading role in addressing the fruit fly problem.

6) Technical assistance should be directed towards strengthening SPS framework conditions, conformity assessment infrastructure and SPS compliance services.

In the past technical assistance programmes did not necessarily focus on addressing capacity building needs in these areas.

Market -side

*7) Kenya should convince South Africa there is no risk of *B. invadens* for avocado from Kenya.*

The onus is on Kenyan authorities to demonstrate to the RSA through pest surveillance that avocado exports from Kenya would not introduce the invasive fruit fly to South Africa. This can only follow successful implementation of *B. invadens* control or eradication programmes. Pest surveillance, an official process which collects and records data on pest occurrence or absence by survey, monitoring or other procedures (FAO,

2001), is necessary for collecting and recording pest information fundamental for conducting pest risk analysis or declaration of pest free areas (FAO, 1997b). However, major investments in fruit fly control remain a requisite for successful negotiations to take place.

8. Kenya should adopt area-wide strategies using Regional SPS frameworks

Regional approaches to managing or reducing the prevalence of *B. invadens* have been applied in other countries and regions (Stonehouse, et al., 2002; Manrakhan & Hatting, 2012). As *B. invadens* is not bound by borders, regional approaches are likely to be more viable and effective than a single country approach. This calls for design and implementation of efficient policies and measures (Mumford, 2004). Furthermore it should facilitate the exchange of information, experiences and good practices, and could pave way to cross-border activities such as joint research and monitoring. In short, regional approaches are necessary for effective management of *B. invadens*.

CHAPTER 4 IMPLEMENTATION OF THE SPS AGREEMENT IN KENYA

An Institutional Analysis

4.1 Introduction

4.1.1 Background

The Republic of Kenya has participated in the rules based trade under the World Trade Organization (WTO) since its inception in 1994 and is a signatory to all treaties and agreements of the WTO, including the Agreement on Application of Sanitary and Phytosanitary Measures (SPS Agreement). Additionally, Kenya subscribes to treaties of international standards-setting organisations (ISSOs) recognised by the SPS Agreement, which include the Codex Alimentarius Commission(CAC), International Plant Protection Convention (IPPC) and World Organisation for Animal Health (OIE). These ISSOs set international standards that promote safe trade in agricultural and food products. These frameworks have widened the scope of regional and international trade opportunities for Kenya's agro-industry exports which have earned the country the much needed foreign exchange for economic development. However, there are also challenges arising from implementation of the WTO rules based trading system.

4.1.2 The Issue

While Kenya's opportunities for agro-food trade appear unlimited, Kenya's agro-food product's continue being rejected in several countries and are not permitted in other cases due to failure to meet SPS requirements of importing countries. Market access is vital to Kenya's agricultural development. Major agricultural exports include industrial crops

such as tea, coffee and pyrethrum, and horticultural produce dominated by fruits, vegetables and flowers and fish. However, SPS concerns on Kenya's agricultural exports have increased in the recent years creating the need to address these challenges along the entire value chain. The challenges can be traced back to two main challenges in Kenya as the exporting country. Firstly, Kenya's agro-food products to high value markets have failed to meet the minimum SPS requirements in importing countries. Secondly, the agro-food products have not been competitive enough in the market due to high costs emanating from expensive conformity assessment procedures. SPS compliance infrastructure in the country is either inadequate or missing. Moreover, the capacity of Kenya's SPS institutions to support agro-food value chains comply with SPS standards is being questioned.

It is necessary to establish appropriate conditions to support conformity with international market requirements, and to upgrade agro-food value chains to deliver products that comply with SPS requirements. Institutions are required to provide the rules by which all actors should abide, and organisational arrangements that ensure effective SPS controls and service delivery to value chain actors. This research examines the implications of SPS standards on trade and development in Kenya. In particular, the research focuses on the institutional environment and organisational aspects for ensuring that Kenya's agro-food exports comply with SPS standards of importing countries and that agro-food imports into Kenya do not pose food safety and animal or plant health risks. The study also provides analyses of key agro-food value chains in order to better inform decision makers on investment options for development of a rational standards and conformity assessment infrastructure for SPS compliance.

4.1.3 Objectives of the Study

The purpose of this section is to assess the implementation of the SPS Agreement in Kenya, with emphasis on institutional environment and arrangements in place to support trade in food and agricultural products. Specifically, the aim of the study was:

- 1) To examine SPS policy and institutional environment in Kenya
- 2) To understand the institutional arrangements and coordination mechanisms in place
- 3) To identify challenges and opportunities in implementation of the SPS Agreement
- 4) To make recommendations on institutional choices necessary to improve performance of Kenya's SPS Institutions

4.1.4 Research Questions

This study seeks to answer the following questions:

- 1) What are the various SPS laws, regulations and standards in Kenya?
- 2) What are the institutional arrangements for SPS compliance in Kenya?
- 3) What are the current challenges and opportunities to improve the SPS system?
- 4) What alternatives are available for improvement of Kenya's SPS System?

4.1.5 Justification

Implementation of the SPS Agreement at national level requires a strong and well-coordinated legal, regulatory and institutional framework that is consistent with the requirements of both the WTO SPS Agreement (Kleih, 2012a) and regional trade agreements (RTAs) (Rutabanzibwa, 2006). Kenya's exports to high value markets in industrialized countries are largely agricultural and food products. Studies indicate that the institutional framework for SPS controls in most developing countries is fragmented, and the responsibility for SPS controls is shared by a number of institutions (Waite & Gascoine, 2003). Such fragmented systems with conflicting institutional arrangements

may cause problems in regulatory controls and severely limit export opportunities for agro-food exports from developing countries (Wilson & Otsuki, 2001).

Coordination between and amongst public and private sector entities dealing with food safety, animal health and plant health is key to increasing trade in agro-food products (Rutabanzibwa, 2006). This is because it raises the ability to communicate SPS developments and notifications to relevant public and private sector stakeholders; improves a country's and/or region's ability to discuss and negotiate SPS related matters on international and national forums; minimises duplication of efforts by different agencies to address SPS issues; helps identify and overcome gaps between institution's mandates; and deals with SPS issues in a cost effective manner (Kleih, et al., 2012c). Coherent SPS coordination, integrated into policy, will contribute to a country's ability to implement the WTO SPS Agreement and to increase their participation in International Standard Setting Bodies (ISSBs). Additionally, it will strengthen a country's or region's internal SPS system, which in turn may help increase agricultural production, enhance food security and mitigate against the negative effects of climate change (Henson, 2009).

4.2 Research Method

4.2.1 Definition of Method

This study is conducted using an institutional analysis methodology. Institutional analysis is that part of the social sciences which studies how institutions behave and function according to both empirical rules (informal rules-in-use and norms) and theoretical rules (formal rules and law) (North, 1990). It deals with how individuals and groups construct institutions, how institutions function in practice, and the effects of institutions on society (Holland, et al., 2005). The rules of the game of society are well known as institutional

environment (Davis & North, 1971; Williamson, 1990), as they describe the conditions under which transactions will occur. Institutions can also be described as governance structures specified by agents for managing their transactions (Williamson, 2005). According to Williamson, a governance structure is defined as the explicit or implicit contractual framework. Every type of an organization (firm or market) is based on a specific contractual rule.

The institutional environment forms the framework in which human action takes place (Klein, 1999). Institutions reduce uncertainty by providing a structure to everyday life, as they define and limit the set of choices of individuals (North, 1990). Institutional constraints include both what individuals are prohibited from doing and, sometimes, under what conditions some individuals are permitted to undertake certain activities. Institutional analysis can thus help institutions to live up to the “titles” they have been given— service providers should genuinely provide actual services and enabling agencies should become genuinely “enabling”. Institutional analysis can play a role at almost any stage in the development of interventions including strategy and programme development, project design, as well as troubleshooting, project supervision, monitoring and evaluation (IFAD, 2008).

4.2.2 Validity of Method

Institutions are viewed as equilibrium, established as a result of repeatedly played games (Herrera, et al., 2005). Institutions and institutional change have generally been analysed as ways of reducing transaction costs, reducing uncertainty, internalizing externalities, and producing collective benefits from coordinated or cooperative behaviour, as illustrated by NIE literature (Eggertsson, 1990; Furubotn & Richter, 1991). SPS

legislation serves several purposes, most importantly enabling countries to protect their agricultural resources and natural environment from the introduction or spread of pests (FAO, 1997a). In the study by the World Bank to assess the level of SPS management capacity in the groundnut (peanut) subsector in Senegal (Mbaye, 2004), phytosanitary regulatory controls by government did not necessarily increase trade in groundnuts for Senegal. Although the Government of Senegal was fully in charge of domestic phytosanitary regulatory control of the subsector and introduced many reforms in the country's SPS policy frameworks, Senegal continued to suffer low production and difficulties in meeting European Union (EU) Standards.

4.2.3 Application of the Method in this Study

4.2.3.1 Methodological Steps

The study followed a four step generic model for institutional analysis: institutional structure, institutional efficiency, institutional choice, and institutional change as suggested by Herrera, et al. (2005), which is in line with Williamson's three-level model (Williamson, 1996; Herrera, et al., 2005). These steps have been further enhanced by the University of Greenwich (Natural Resources Institute) to develop a toolkit to strengthen SPS coordination, assess impact of notifications and analyse the costs and benefits of SPS controls (Kleih, et al., 2012c).

Figure 4-1 below summarizes the methodological steps used in this study for institutional analysis:

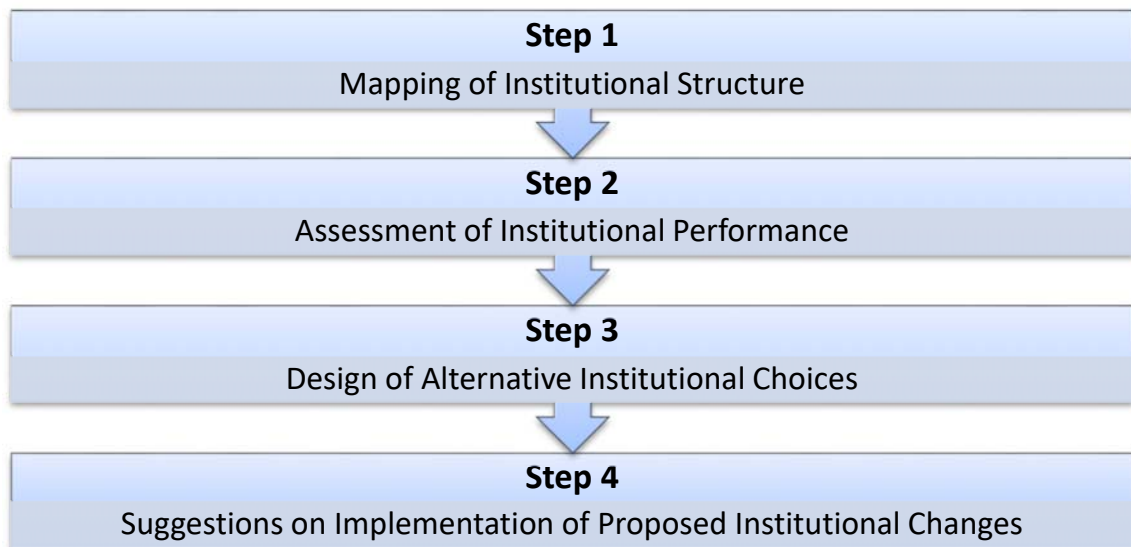


Figure 4-1: Summary of Methodological steps for Institutional Analysis

Step 1: Mapping of SPS Institutional Structure

This step involved understanding the underlying SPS institutional structure in Kenya. It involved mapping of SPS institutional environment on the one hand, and SPS institutional arrangements, on the other. Mapping of institutional environment focused on current SPS policies, laws, regulations and standards in Kenya. Mapping of institutional arrangements focused on SPS related agencies in Kenya. The objective was to have a deep idea of the structure, actors and rules (formal or informal), that define the Kenyan SPS system. The first task involved providing a detailed description of SPS institutions in Kenya by levels suggested by Williamson (1996), which include: institutional environment (rules), institutional arrangements (governance structures) and behavioural aspects of individuals (such as coordination mechanisms).

Step 2: Assessment of SPS Institutional Efficiency

This step involved assessing efficiency of the performance by examining the current institutional structure as is to see whether it was producing socially and economically

desirable outcomes. If not, this would suggest the need to depict a new institutional setting. The key question in the assessment was how the different institutions involved would affect the observed outcome in the context of different interests of government, producers, business community and consumers. The approach to institutional efficiency involved the identification of efficiency criteria, which would be examined to qualify the competence of the prevailing institutional setting.

Step 3: Developing SPS Institutional Choices

The third step was institutional choice or the process of designing institutional arrangements. The objective of this step was to derive some elements with respect to the final choice of an institutional setting (institutional arrangements) given the options available. The focus was on looking for arrangements that could contribute to improving the current performance of the institutional structure, which previously had been regarded to be a problem. The approach involved designing of a set of arrangements which should procure the interaction of individuals, either for improving the performance of the day-to-day use of the resource, or to build a more feasible institutional environment.

Step 4: Implementation Options for Institutional Change

The final step involved recommending options for implementing institutional choices in order to move from a socially and economically undesirable SPS institutional equilibrium towards a new one. This called for proper definition of social and economic objectives for the allocation of resources, in addition to having available information about the potential of the proposed institutional arrangements to move to such new institutional equilibrium. The purpose was not to predict the future, but to inform decision makers of

the choice of a particular SPS institutional setting and how they could use existing political institutions to implement such changes.

4.2.3.2 Data Collection and Analysis

Information was collected using Semi-structured Interviews and Focus Group Discussions, including the National SPS Coordination Committee. For analysis, the study used a range of SPS capacity analysis tools, including the IICA tool on Country SPS Frameworks (Ledezma & Peña, 2008) and NRI SPS toolkit for Institutional Analysis (Kleih, et al., 2012c). Specific techniques employed involved a stakeholder analysis, visual mapping and design of communication flow chart.

4.3 Findings and Discussions

4.3.1 Mapping of Kenya's SPS Policies and Institutions

4.3.1.1 SPS Policy Environment

The Republic of Kenya does not have a consolidated SPS policy, but is developing separate policies covering different aspects of SPS. The various policy documents affecting agriculture, fisheries and forestry in general include: Kenya Vision 2030, Agriculture Sector Development Strategy (ASDS) 2010-2020, National Livestock Policy 2008, National Veterinary Policy, National Oceans and Fisheries Policy 2008, National Forest Policy 2014, National Biosafety Policy, National Industrialisation Policy, National Trade Policy, Kenya Health Policy 2014-2030, National Environment Management Policy 2013.

The current SPS policy framework in Kenya is summarised in *Table 4-1* below.

Table 4-1: Kenya's National SPS Policy Environment, 2016

Focus	Overall Development	Food Safety	Animal Health	Plant Health
Environment & Natural Resource Management	Vision 2030; Agriculture Sector Development Strategy (ASDS) 2010-2020; National Livestock Policy; National Beekeeping Policy 2009; National Oceans & Fisheries Policy 2008; National Forest Policy; National Environment Policy 2013	ASDS 2010-2020; National Livestock Policy 2008; National Oceans & Fisheries Policy; National Food Safety Policy	National Livestock Policy 2008; National Beekeeping Policy 2009; National Veterinary Policy; National Biosafety Policy	National Forest Policy;
Primary Production	Vision 2030; ASDS 2010-2020; National Livestock Policy; National Oceans & Fisheries Policy 2008; National Forest Policy	ASDS 2010-2020; National Livestock Policy 2008; National Oceans & Fisheries Policy; National Food Safety Policy	National Veterinary Policy; National Livestock Policy; ASDS 2010-2020	National Forest Policy; ASDS 2010-2020

Agro-processing & Value-added	Vision 2030; National Industrialisation Policy; ASDS 2010-2020; National Oceans & Fisheries Policy;	National Industrialisation Policy; National Food Safety Policy		
Trade & Market Access	Vision 2030; National Trade Policy	National Food Safety Policy	National Livestock Policy; National Veterinary Policy; National Biosafety Policy	ASDS 2010-2020;
Health & Consumer Protection	Vision 2030; Kenya Health Policy 2014-2030	Kenya Health Policy 2014-2030; National Food Safety Policy	Kenya Health Policy 2014-2030	National Biosafety Policy

Kenya Vision 2030

Kenya's Vision 2030 is the new development blueprint covering the period 2008 to 2030. It aims at making Kenya a newly industrializing, “middle income country providing high-quality life for all its citizens by the year 2030”. The Vision was developed through an all-inclusive stakeholder consultative process, including those concerned with trade and SPS matters. The Vision has three pillars: political, social and economic. The economic pillar aims to maintain sustained economic growth of 10 per cent over the 10 years from 2008, and is implemented in successive five-year Medium-Term Plans. The vision emphasizes on giving special consideration to good governance and institutional capacity building. In this regard a framework exists in which to establish or strengthen Kenya’s SPS institutional capacities for trade and development. The development and prosperity of Kenya are pegged on regional development and a favourable environment that promotes trade and investment. The Sessional Paper No. 2 of 1997 on “Industrial Transformation to the year 2020” clearly defines Kenya’s approach to regional integration arrangements. It identifies institutional and legal framework as pre-requisites to fostering international and regional trade which could benefit Kenya (GoK, 1996).

National Environment Policy, 2013

The goal of the National Environment Policy is to better quality of life for present and future generations through sustainable management and use of the environment and natural resources. This is expected to be realised through several objectives which include: to provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources; to strengthen the legal and institutional framework for good governance, effective coordination and management of the environment and natural resources; and to ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods, among other objectives. The Policy proposes a broad range of policy and institutional measures and actions responding to key environmental issues and challenges. It also seeks to provide the framework for an integrated approach to planning and sustainable management of natural resources in the country.

Kenya Health Policy 2014-2030

The goal of the Kenya Health Policy 2014-2030 is to “attain the highest possible standard of health in a responsive manner”. The health sector aims to achieve this goal by supporting equitable, affordable and high-quality health and related services at the highest attainable standards for all Kenyans. In implementing the policy, the health sector is guided by the primary healthcare approach, which remains the most efficient and cost-effective way to organise a health system. Through this policy, the health sector seeks to deliver on two obligations on health: (i) progressive realisation of the right to health, and (ii) contribution to development. Under the first obligation, the national and county

governments are expected to put in place measures to progressively realise the right to health as outlined in Article 21 of the Constitution of Kenya, 2010. The sector is expected to employ a human rights-based approach in healthcare delivery and integrate human rights norms and principles in the design, implementation, monitoring, and evaluation of health interventions and programmes. As for the second obligation on contribution to development, the health sector is expected to contribute to the attainment of the country's long-term development agenda outlined in Kenya's Vision 2030 through the provision of high-quality health services to maintain a healthy and productive population.

Agriculture Sector Development Strategy, 2010-2020

While agricultural sector remains the backbone of Kenya's economy and the means of livelihood for most of the rural population, by way of providing food security and poverty reduction, there is currently no overarching agriculture policy in the country. In 2010, the Government of Kenya developed the Agriculture Sector Development Strategy (ASDS) covering the period 2010-2020. The vision of the Ministry of Agriculture, Livestock and Fisheries is: "a food-secure and prosperous nation", with the mission of an "innovative, commercially-oriented and modern agriculture". The overall goal is to achieve an average growth rate of 7 per cent per year, which is anchored on two strategic thrusts: increasing productivity, commercialization and competitiveness of agricultural commodities and enterprises; and developing and managing the key factors of production.

National Livestock Policy, 2008

The National Livestock Policy of 2008 addresses the challenges in the livestock sub-sector in the context of livestock breeding, nutrition and feeding, disease control, value addition and marketing, and research and extension. The policy is broadly guided by the

following specific objectives: to achieve appropriate livestock management systems for sustainable development of the livestock industry; to improve and conserve available animal genetic resources effectively; to achieve effective control of animal diseases and pests in line with the relevant international codes and standards; to ensure safety of foods of animal origin through professional meat inspection, milk hygiene, and other animal resource products quality control focus research efforts in the livestock sub-sector on resolving current and emerging problems; to ensure quality standards and quality assurance at all levels of production and marketing chain for increased competitiveness of the livestock industry; and to address various cross-cutting issues that impact on the livestock sub-sector, such as land, water, environment, infrastructure, insecurity, livestock-wildlife interactions, HIV/AIDS and other human diseases, gender and capacity building.

National Oceans and Fisheries Policy, 2008

The Primary goal of the Oceans and Fisheries sector in Kenya is to ensure increased and sustainable fish production and utilization by properly managing the Ocean and other Kenya fishery waters. Thus, the overall objective of the National Oceans and Fisheries Policy is “to enhance the oceans and fisheries sector’s contribution to wealth creation, increased employment for youth and women, food security, and revenue generation through effective private, public and community partnerships”. The policy focuses on the promotion, implementation and monitoring of sustainable management and responsible fishing practices. It also focuses on the promotion of fish consumption as a means increasing food security, employment, income, foreign exchange earnings, arising from trade and related activities. It aims at securing the rights of vulnerable and traditional

fisher communities and further outlines the Kenya Government's commitment to promote gender equity, and to integrate HIV/AIDS prevention and management.

National Forest Policy, 2014

The overall goal of the Forest Policy, 2014 is sustainable development, management, utilization and conservation of forest resources and equitable sharing of accrued benefits for the present and future generations of the people of Kenya. Included among the objectives of the policy are: to increase and maintain tree and forest cover of at least ten percent of the land area of Kenya; and to establish an enabling legislative and institutional framework for development of the forest sector. The Policy proposes a broad range of measures and actions responding to the challenges faced by the forest sector. A number of strategic initiatives have been introduced to improve and develop the forest resource base; integrate good governance, transparency, and accountability, equity and poverty reduction into the forest. The policy is expected to provide the basis upon which the on-going governance, administrative and legislative reform process will be continued.

National Wildlife Policy, 2012

The goal of the Policy is to create an enabling environment for the conservation in perpetuity, Kenya's rich diversity of species, habitats and ecosystems for the well-being of its people and the global community in accordance with the Constitution of Kenya, 2010. The policy makes provision for an overarching framework for the prudent and sustainable conservation, protection and management of wildlife and wildlife resources in Kenya, with incidental provision on access and the fair and equitable distribution of benefits accruing there-from, and its alignment with other sector-specific laws and the National Environment Policy.

National Trade Policy, 2009

In order to support the implementation of the overall economic policy in the country, Kenya's National Trade Policy (NTP) of 2011 was formulated. The overall goal of Kenya's NTP 2011 is to play a key role by contributing to the development of a competitive and globally efficient economy through two broad objectives. The first is to pursue more open, competitive, and export-oriented policies that are compatible with the country's national development objectives; and the second is to create an enabling environment for trade and investment to thrive. The sectors identified as offering export opportunities to Kenya include tea, coffee, horticulture, livestock and livestock products, fish and fish products, food and beverages, textiles and clothing, and commercial crafts. The approach adopted comprises of setting and re-defining government policy relating to international and domestic trade; designing appropriate complementary measures to improve the business regulatory and macroeconomic environment; increasing investment in infrastructure to support trade development; improving trade facilitation in order to enhance efficiency and delivery of goods and services in both domestic and international markets; improving coordination of institutions responsible for promoting and regulating trade; and ensuring effective participation of key stakeholders (such as legislators, government ministries, private sector, civil society and development partners). Kenya's NTP envisages using a comprehensive, coherent, and integrated approach to achieving its objectives. Although SPS matters are not explicit in the letter of its content, the spirit of the substance of the policy demonstrates a strong support for SPS institutions.

4.3.1.2 SPS Institutional Environment

Kenya's SPS institutional environment is influenced by international and regional SPS frameworks, including the WTO and Regional Economic Communities (RECs) for which the Republic of Kenya subscribes as a member country. *Table 4-2* below provides a summary of the institutional environment for development, enactment and enforcement of SPS measures in the Republic of Kenya.

Table 4-2: Kenya's National SPS Institutional Environment

Institutional Rules	Trade	Food Safety	Animal Health	Plant Health
Overall Legal Framework	The Constitution of Kenya, 2010			
Development Blue Print	Vision 2030			
Key national SPS legislation	NONE	Public Health Act Cap 242 (Rev.2002) Food, Drugs and Chemical Substances Act Cap 254 (Rev. 2002) Meat Control Act Cap 356 (Rev. 1980) Dairy Act Cap 336 Fisheries Act Cap 378 Standards Act Cap 496 Biosafety Act, Number 9 of 2009	Crop Production and Livestock Ordinance Act Cap 321 Dairy Act Cap 336 Fertilizer and Animal Feedstuff Act Cap 345 Meat Control Act Cap 356 (Rev. 1980) Animal Health Act Cap 364; Veterinary Surgeons and Veterinary Paraprofessionals Act, Number 29 of 2011; Biosafety Act, Number 9 of 2009	Agricultural Act Cap 318 Agricultural Produce Act Cap 319 Plant Protection Act Cap 324 Suppression of Noxious Weeds Act Cap 325 Seed and Plant Variety Act Cap 326 Pest Control Products Act Cap 346 Biosafety Act, Number 9 of 2009

Linkage with International SPS Legislation

As result of the 2010 Constitution, Kenya is undergoing a major law reform and amendment process, led by the Kenya Law Reform Commission. Kenya participates in

international trade and has ratified all trade agreements related to the WTO, including the Agreement on Application of Sanitary and Phytosanitary Measures (SPS Agreement) of 1995. For this reason Kenya admits imports from all WTO member countries without discrimination between members with similar conditions or between own territory and other WTO members.

In addition, Kenya is a member of the three SPS international standard setting organisations recognised by the WTO SPS Agreement: the Codex Alimentarius Commission (CAC), the World Organization for Animal Health (OIE), and the International Plant Protection Convention (IPPC) in order to promote international harmonisation of SPS regulations. Kenya has also signed the Cartagena Protocol on Biosafety in 2000, and fulfilled the ratification requirements in 2003. Other SPS related international agreements and treaties for which Kenya has ratified include the International Seed Testing Association (ISTA) and International Union for the Protection of New Plant Varieties (UPOV).

Linkage with Regional SPS Legislation

Kenya is a member of the African Union (AU) and various regional economic communities (RECs) in Africa: The Common Market for Eastern and Southern Africa (COMESA); The East African Community (EAC) and The Intergovernmental Authority on Trade and Development (IGAD). SPS frameworks in these RECs impact directly on Kenya's SPS legislation. The main regional SPS frameworks include the COMESA SPS Regulations; the EAC SPS Protocol; and IGAD Animal Health Regulations.

National SPS Legislation

The Constitution of Kenya, 2010 is the overall legal framework in Kenya. There is no specific overarching SPS law in Kenya.

4.3.1.3 SPS Institutional Arrangements

At the national level, SPS institutional arrangements comprise bodies developing or enforcing national SPS policies and laws; conformity assessment bodies; SPS research and teaching institutions; and partnership arrangements among public sector bodies and with the private sector. *Table 4-3* below summarizes Kenya's SPS institutional arrangements at national level covering areas of food safety, animal health and plant health. Some organisations cover more than one function.

Table 4-3: Kenya's National SPS Institutional Arrangements

Function	Food Safety	Animal Health	Plant Health
Development of SPS Measures	Ministry of Health; State Department of Agriculture State Department of Livestock State Department of Fisheries	State Department of Livestock	State Department of Agriculture
Application of SPS Measures	Ministry of Health; Agriculture and Food Authority; State Department of Fisheries Kenya Bureau of Standards	Directorate of Veterinary Services; State Department of Livestock; State Department of Fisheries; Kenya Wildlife Service	Kenya Plant Health Inspectorate Service; Agriculture and Food Authority Kenya Forest Service
Harmonisation of SPS Measures	Ministry of Health; Agriculture and Food Authority; State Department of Fisheries Kenya Bureau of Standards	State Department of Livestock; Directorate of Veterinary Services	Kenya Plant Health Inspectorate Service; Agriculture and Food Authority
Equivalence Agreements	Ministry of Health; Agriculture and Food Authority State Department of Fisheries Kenya Bureau of Standards	Directorate of Veterinary Services	Kenya Plant Health Inspectorate Service; Agriculture and Food Authority
Risk Assessment	National Universities; Kenya Agricultural & Livestock Research Organisation (KALRO)	National Universities; Kenya Agricultural & Livestock Research Organisation	National Universities; Kenya Agricultural & Livestock Research Organisation
Adaptation to regional conditions, including Pest or Disease Free Areas & Areas of Low Pest or Disease Prevalence	Ministry of Health; Agriculture and Food Authority State Department of Fisheries Kenya Bureau of Standards	Directorate of Veterinary Services; State Department of Livestock	Kenya Plant Health Inspectorate Service; Agriculture and Food Authority
Transparency	Ministry of Health Kenya Bureau of Standards	Directorate of Veterinary Services;	Kenya Plant Health Inspectorate Service;

	State Department of Trade	State Department of Trade	State Department of Trade
Control, Inspection and Approval Procedures	Ministry of Health; Directorate of Veterinary Services; Agriculture and Food Authority; State Department of Fisheries Kenya Bureau of Standards	Directorate of Veterinary Services;	Kenya Plant Health Inspectorate Service; Kenya Forest Service
Laboratory Services	National Public Health Laboratories; Kenya Bureau of Standards Labs KEPHIS Analytical Chemistry Laboratories; Kenya Veterinary Laboratories University Laboratories KALRO Laboratories	Kenya Veterinary Laboratories; University Laboratories; KALRO Laboratories	KEPHIS Diagnostic Laboratories; University Laboratories; KALRO Laboratories
Technical Assistance Programmes	Ministry of Health State Department of Agriculture; State Department of Livestock; State Department of Fisheries	Directorate of Veterinary Services; State Department of Livestock	Kenya Plant Health Inspectorate Service; State Department of Agriculture;
Consultations & Dispute Settlement	Ministry of Health State Department of Trade	Directorate of Veterinary Services; State Department of Trade	Kenya Plant Health Inspectorate Service; State Department of Trade
Coordination	Ministry of Health State Department of Agriculture; State Department of Livestock; State Department of Fisheries	Directorate of Veterinary Services; State Department of Livestock;	Kenya Plant Health Inspectorate Service; State Department of Agriculture

Ministry of Foreign Affairs

The Ministry of Foreign Affairs coordinates and facilitates the formulation of Kenya's foreign policy. However, the conduct of foreign policy in Kenya is a prerogative of the Head of State in accordance with section 16 of the Constitution of Kenya, Amendment Act No. 28 and in Section 23 of the Constitution. Therefore the ministry's responsibility is that of advice on and execution of the foreign policy in consultation with the President. The need to pursue an open economic policy and the demand for foreign capital and investment flows, inter-alia Foreign Direct Investment (FDI) and Overseas Development Assistance (ODA), has influenced Kenya's approach to foreign policy (MOFA, 2013). The Ministry of Foreign Affairs is also the custodian of multilateral treaties and agreements, including the Agreement establishing the WTO and the SPS Agreement. The

Ministry of Foreign Affairs is also the WTO Reference Centre, which is the official WTO information point where users can enquire about standards, regulations and notifications that may affect international trade.

Ministry of Health

The mission of the Ministry of Health is to build a progressive, responsive and sustainable health care system for accelerated attainment of the highest standard of health to all Kenyans. With the goal of attaining equitable, affordable, accessible and quality health care for all, the mandate of the Ministry of Health is fourfold: Development of health policy; Health regulation; Establishment of National Referral Health Facilities; Capacity building; and Technical assistance to devolved units in Counties. The Ministry of Health delivers its mandates under the provisions of two main Acts of Parliament- the Public Health Act Cap 242 and the Food, Drugs and Chemical Substances Act Cap 254 Laws of Kenya (MOPHS, 2011). Enforcement of the law is done through Public Health Officers, appointed under the Public Health Act (Cap 242) section 9(1). They carry out duties as specified in both Cap 242 and Cap 254.

State Department of Agriculture

The mandate of the State Department of Agriculture is to promote and facilitate production of food and agricultural raw materials for food security and incomes; advance agro-based industries and agricultural exports; and enhance sustainable use of land resources as a basis for agricultural enterprises (MOA, 2013). The State Department of Agriculture derives its mandate from the Agriculture Act (Cap 318).

Agriculture and Food Authority (AFA)

The Agriculture and Food Authority (AFA) is a state corporation established through an Act of Parliament specifically, under section 3 of the Agriculture and Food Authority Act of 2013. The Act consolidates the laws on the regulation and promotion of agriculture and makes provision for the respective roles of the national and county governments in agriculture and related matters. The mandate of the Authority is to: (1) Administer the Crops Act; (2) Promote best practices and regulate, the production, processing and marketing of agricultural products; (3) Collect, collate data and maintain a database on agricultural products (4) Determine the research priorities in agriculture; and (5) Advise the national government and the county governments on agricultural levies for purposes of planning, enhancing harmony and equity in the sector.

State Department of Fisheries

The mandate of the State Department of Fisheries is to provide for the exploration, exploitation, utilization, management, development and conservation of fisheries resources, and undertake research in marine and fresh water fisheries in accordance with the Fisheries Act (Cap 378). The Department ensures the safety of fish and fishery products by putting into consideration measures necessary to protect and safeguard the health of consumers, and to ensure sustainability of local and export markets. The Department is the Competent Authority (CA) on fisheries in accordance with “The Fisheries Regulations, 2007”, which came into force on 21st September 2007 as Legal Notice No. 170. As Competent Authority, the Department works in partnership with stakeholders in the private and public sectors to ensure sustainable management of the fishery resources in the country and sustained market access.

State Department of Livestock

The mandate of the State Department of Livestock is to promote, regulate and facilitate livestock production for socio-economic development and industrialization in accordance with the Animal Health Act (Cap 364). The core functions of the State Department of Livestock include: formulation, implementation and monitoring of policy; development and co-ordination of programmes; regulatory management and quality control of inputs, produce and products; Management and control of diseases and pests; provision and facilitation of extension services; research agenda setting, liaison and coordination; and management and conservation of the natural resource base, among others. The Department has two technical directorates: Directorate of Animal Production and Directorate of Veterinary Services (DVS).

Directorate of Veterinary Services (DVS)

The DVS was established to prevent and control animal diseases and pests in order to safeguard human health, improve animal welfare, increase livestock productivity, ensure high quality livestock and their products and facilitate domestic and international trade. The DVS was established to prevent and control animal diseases and pests in order to safeguard human health, improve animal welfare, increase livestock productivity, ensure high quality livestock and their products and facilitate domestic and international trade. The DVS also enforces the Meat Control Act, the Dairy Act and the Public Health Act to regulate food safety aspects for food of animal origin jointly with other food control agencies.

Kenya Plant Health Inspectorate Service (KEPHIS)

Pursuant of the State Corporations Act (Cap 446), KEPHIS was created in 1996 through Legal Notice No. 305 to undertake quality control services in agricultural inputs, plant variety protection and plant health. In addition, the Plant Protection Rules under Legal Notice No. 108 was issued on 17th July 2009 to regulate the importation of plants, plant products and regulated articles. The Legal Notice requires KEPHIS as the National Plant Protection Organization (NPPO) to ensure importation of plants, plant product and regulated articles to conform to set rules. KEPHIS is responsible for coordinating all matters relating to plant health, and quality control of agricultural inputs and products in Kenya in line with the KEPHIS Act (2012). KEPHIS inspects imports of plants, seeds, and fruit other than canned or bottled. KEPHIS is also Kenya's National Enquiry Point for Phytosanitary matters and a focal point for OECD Standards for fruits and vegetables.

Kenya Bureau of Standards (KEBS)

The Kenya Bureau of Standards is a corporate body established in 1974 under the Standards Act Cap 496 to promote standardization in industry and trade. KEBS is a government agency responsible for provision of Standards, Metrology and Conformity Assessment (SMCA) services. It is the public organization responsible for developing, setting and implementation of standards in Kenya. KEBS is the National Enquiry Point in support of the WTO Agreement on Technical Barriers to Trade (TBT) and is the National Contact Point for Codex. Therefore, KEBS is a part of the national quality infrastructure for food control that brings together a number of public sector agencies. Inter-sector collaboration and coordination is necessary to achieve a broader vision for food control in Kenya.

4.3.2 Performance of Kenya's SPS Institutions

4.3.2.1 Performance of Kenya's Food Control System

Development of Food Safety Policies

Kenya's Food control system is multi-sectoral and is impeded in various sectoral policies and laws thereby allowing many agencies and actors to play a role in food safety. Policies that are supportive of food safety include: National Food Safety Policy (2012), the National Livestock Policy (2008); National Veterinary Policy; National Oceans and Fisheries Policy (2008); Agriculture Sector Development Strategy (2010-2020); National Health Policy (2014-2030). Kenya concluded the National Food Safety Policy in 2012. However, it could not be implemented due to the Presidential Decree of 2013 that emphasised on rationalisation and merging of existing government institutions.

In 2016, Kenya started development of the Kenya Food and Drugs Policy, which once concluded is intended to establish a framework for control of food and drugs in the country. The overall goal of the National Food and Drugs Policy is to establish and maintain a rational, integrated farm-to-fork food safety system that harmonizes inter-agency efforts, minimizes inter-agency conflict and overlap, and ensures the protection of public health and food trade in line with the WTO SPS Agreement and other international requirements. It also recognizes the need to harmonise food safety policy framework in regional economic communities (RECs) for which Kenya is signatory, in particular the EAC and COMESA. Kenya is still in the process of developing a strategy for implementation of the National Food Safety Policy.

Setting of Food Safety Laws and Regulations

The Republic of Kenya has a variety of food safety regulations. The main laws related to food safety include: Food, Drugs and Chemical Substances Act Cap 254 (Rev. 2002); Public Health Act Cap 242 (Rev.2002); Meat Control Act Cap 356 (Rev. 1980); Dairy Act Cap 336; Fisheries Act Cap 378; Standards Act Cap 496; Crops Act (2013), Pest Control Products Cap 346; and Biosafety Act, Number 9 of 2009. *Table 4-4* below provides a summary of the description and provisions of the Acts.

Table 4-4: Food Safety Laws in Kenya

Food Safety Legislation	Reference	Description	Key Provisions on Food Safety
The Food, drugs and Chemical Substances Act	Cap 254	An Act of Parliament enacted in 1965 to make provision for the prevention of adulteration of food, drugs and chemical substances and for related and incidental matters.	The Act prohibits sale of unwholesome, poisonous or adulterated food. In addition labelling, packaging, treatment, processing, selling or advertising of any food in contravention in a manner that is false, misleading or deceptive is strictly forbidden. The Act requires strict compliance to food standards in labelling, packaging, selling or advertising of any food, and prohibits against sale of food not of nature, substance or quality demanded by the purchaser. The Act demands that hygiene be observed throughout food preparation, packaging, conveyance, storage and display.
The Public Health Act	Cap 242	An Act of Parliament to make provision for securing and maintaining health.	It provides a broad scope on public health. In food safety, the Act creates subsidiary legislation including: The Public Health (Milk and Dairies) Rules; The Public Health (Meat Inspection) Rules; and The Public Health (Importation of Meat) Rules. In this regard the Act provides overlapping mandates to various government institutions on inspection of meat and milk products, and general food products. This includes, for example, local authorities in various counties and towns.
The Meat Control Act	Cap 356	An Act of Parliament that enables control to be exercised over meat and meat products intended for human consumption and over slaughterhouses and places where such meat is processed.	It provides for import and export control over meat and meat products. It gives power to the Minister responsible to make regulations, among others, “specifying standards, in consultation with the Minister for the time being responsible for health, to be observed in respect of the manufacture of meat products, including the name or description, composition, additives or contaminants, labelling and packaging of such products”
The Dairy Act	Cap 336	An Act of Parliament to	The Act provides for establishment of a board and

Food Safety Legislation	Reference	Description	Key Provisions on Food Safety
		provide for the improvement and control of the dairy industry and its products.	gives it power to develop subsidiary legislation. Although the board regulates producers, processors, importers and exporters, it provides for development and enforcement of quality standards.
The Fisheries Act	Cap 378	An Act of Parliament to provide for the development, management, exploitation, utilisation and conservation of fisheries and for connected purposes.	Subsidiary legislation under this Act touching on SPS measures includes the Fisheries (General) Regulations and the Fisheries (Safety of Fish, Fishery Products and Fish Feed) Regulations, 2007. The latter designates the Ministry responsible for fisheries as the Competent Authority responsible for the official control of the safety of fish, fishery products and fish feed.
The Agriculture and Food Authority Act	No. 13 of 2013	An Act of Parliament to provide for the consolidation of the laws on the regulation and promotion of agriculture generally.	It provides for the establishment of the Agriculture and Food Authority (AFA). It makes provision for the respective roles of the national and county governments in agriculture excluding livestock, fisheries and related matters.
The Crops Act	N0.16 of 2013	An Act of Parliament to consolidate and repeal various statutes relating to crops; to provide for the growth and development of agricultural crops and for connected purposes	The Act mandates AFA to establish and enforce standards in grading, sampling and inspection, tests and analysis, specifications, units of measurement, code of practice and packaging, preservation, conservation and transportation of crops to ensure health and proper trading. It also mandates AFA to ensure secure domestic food supply for the country and recognises the various AFA Directorates as Competent Authorities in the specific crops covered in the respective directorates.
The Pest Control Products Act	Cap 346	An Act of Parliament to regulate the importation, exportation, manufacture, distribution and use of products used for the control of pests and of the organic function of plants and animals and for connected purposes	Provides for: Control of manufacture etc., of pest control products; Import, export, etc., of pest control products; Control of counterfeit products; and Establishment and constitution of the Pest Control Products Board
The Standards Act	Cap 496	An Act of Parliament to promote the standardization of the specification of commodities and to provide for the standardization of commodities and codes of practice;	The Act provides for: establishment of the Kenya Bureau of Standards (KEBS) and defines its functions, management and control; and for matters related to standards.

In order to implement these Acts, Kenya has developed sector-specific technical regulations standards which are updated from time to time. The responsibility of setting food safety regulations falls under the Ministry of Health (MOH). The main mandate of MOH is to support the attainment of the health goals of the people of Kenya by implementing priority interventions in public health (MOPHS, 2011). The MOH delivers its mandates under the provisions of two main Acts of Parliament- the Public Health Act Cap 242 and the Food, Drugs and Chemical Substances Act Cap 254 Laws of Kenya. In addition, other ministries related agro-food chains develop their sector-based food safety regulations. These include the Ministry of Agriculture, Livestock and Fisheries (MOALF) for primary products; and the Ministry of Industry, Trade and Cooperatives (MOITC) focusing on processed products.

Harmonisation of Food Safety Regulatory Standards

The MOH and product specific competent authorities in various agro-food sectors revise national regulatory standards and harmonize them with international standards, guidelines and recommendations of the Joint FAO/WHO Codex Alimentarius Commission (CAC) which was established in 1962 to establish standards for food safety (Codex, 2015). However, while Codex recognizes the importance of minimizing the effect of food safety regulations on food trade, the majority of food safety regulations in Kenya are outmoded and not in tandem with Codex standards, guidelines and recommendations.

Kenya is an active member of Codex and has held positions as Coordinator for Codex Committee for Africa (CCAFRICA) and participated in various Technical Committees of Codex where member states formally endorse Codex standards, after thorough reviews of scientific papers based on widely accepted risk assessment procedures. Kenya has

enhanced participation in international Codex meetings, with at least 1-5 delegates, representing sectors of interest for Kenya (see *Table 4-5* below). However, participation in these technical committees is inconsistent and there is no representation in others owing to low awareness at high government levels of importance of participation in Codex hence poor prioritisation and limited funding for Codex activities in Kenya.

Table 4-5: Kenya's Participation in Codex activities in the last 3 years (2011-2013)

Codex Committee	2011	2012	2013
TFAF	-	1- (DVS)	1 (DVS)
CCFICS	1(KEBS), 1 (MOH), 1(KEPHIS)	1 (KEBS)	1 (KEBS)
CCFO	-	-	-
CCMAS	-	1- (KEPHIS)	1 (KEPHIS); 1 (KEBS)
CCFA	1(MOH)	2 (KEBS), 1 (MOH)	1 (KEBS)
CCCF	2 (KEBS), 2 (MOH), 1 (MOA)	1 (KEBS), 1 (MOH), 1(KEPHIS)	1 (KEPHIS)
CCPR	1 (KEPHIS), 1 (PCPB)	1 (KEPHIS), 1 (PCPB)	1 (KEPHIS), 1(PCPB), 1(KEBS)
CCFL	1 (KEBS), 1 (MOH)	2 (KEBS)	
CAC	1 (DVS), 3 (KEBS), 1 (KEPHIS), 2 (AU)	1 (Coca Cola), 2 (KEBS), 2 (MOH), 1 (KEPHIS), 1 (AU)	2 (KEBS), 1 (KEPHIS), 1 (KARI), 2 (AU)
CCRVDF	-	1 (AU)	1 (DVS), 1(KEBS), 1 (AU)
CCNFSDU	1 (KEBS), 1 (Egerton University), 1 (MOH)	1 (KEBS), 1(AU)	1 (KEBS), 2 (AU)
CCFH	-	2 (KEBS), 2 (MOH), 1 (Agrochem), 1 (DVS), 2 (AU), 1 (Ministry of Fisheries)	1 (KEBS), 1 (AU)
CCAFRICA	2 (KEBS), 1 (DVS), 1 (PCPB), 1(MOA), 1(KEPHIS), 1(COCACOLA)	-	1 (KEBS), 1 (DVS), 1 (MOH)
TOTAL	31	32	26

There is also a challenge of effective participation. Although the standards and rule setting process in Kenya has improved over time, Kenya's participation in the various committees and work of Codex has been irregular owing to limited financial resources and lack of data to support decisions. In addition, while the objective food safety

standards are to protect public health and promote safe international food trade, priority given by Government to support participation in international standard setting is low. Similarly, participation in Codex Scientific Committees is hampered by lack of country data and experts that will provide empirical information and facts on subject matters under consideration for risk assessment and scientific advice. Furthermore, there is inconsistency in participation of Kenyan experts in the Codex committees.

At regional level, Kenya has also participated in development of regional standards under auspices of CCAFRICA and actively involved in the harmonization of food standards and food safety measures in the EAC and COMESA. While it remains voluntary for governments to apply Codex standards, Kenya has adopted many Codex standards as national standards in order to facilitate private sector to produce food that meets international standards thereby creating greater export opportunities.

Table 4-6: Food Standards Development Technical Committees in Kenya, 2015

S/N	KEBS TC number	TC name
1	KEBS/TC 001	Cereals and pulses
2	KEBS/TC 002	Horticultural Fresh Produce
3	KEBS/TC 003	Tea
4	KEBS/TC 004	Coffee
13	KEBS/TC 013	Processed Cereals and Pulses
14	KEBS/TC 014	Processed Fruits and Vegetables
15	KEBS/TC 015	Milk and Milk products
16	KEBS/TC 016	Meat and Poultry Products
17	KEBS/TC 017	Fish and Fishery Products
28	KEBS/TC 028	Honey & Other Apiary Products

Kenya has established Standards Development Technical Committees (TCs) (see *Table 4-6*) to develop national standards in line with Codex and other international and regional frameworks. However, as mentioned earlier, Kenya's regulatory frameworks are not

responsive enough to address food safety emergencies or emerging issues being addressed at Codex. The national consultation on texts being elaborated at Codex or at regional level is hampered by lack of scientific data to support arguments and resultant positions.

Although the current trend in Codex is to use a horizontal approach to development of standards, Kenya's standards development process for registered food products is largely towards development of product specifications. Codex is in the process of elaborating general standards covering food additives, contaminants and toxins to provide a wider basis for protecting consumers' health. Countries can better adapt themselves to this approach by implementing a generic regulation applicable to a wide range of products rather than maintaining an inventory of registered foods with specifications for each. The existing food regulations in Kenya are currently product and sub-sector specific which makes them less responsive to emerging issues being addressed in Codex general standards.

KEBS is the National Codex Contact Point in Kenya and has facilitated the establishment of the National Executive Codex Committee (NECC) to provide policy direction in the national Codex activities to facilitate a common voice in Kenya for the handling of food trade and safety issues locally, regionally and internationally. The NECC has continuously focused on harmonising food safety and quality standards as a means of boosting the competitiveness of food products and services. However, the national policy frameworks for food safety remain weak and ineffective.

Transparency in Application of Food Safety Regulatory Measures

The basic standard in transparency in application of food safety measures is that the national food control system has the capability and authority to notify the national SPS authority or directly the WTO of their national regulations and to notify the International Food Safety Authorities Network (INFOSAN) of any food safety emergency, having actual or potential international significance. Despite the changing food safety regulatory environment in Kenya, the national food safety institutions have not so far notified the WTO, directly or indirectly, about changes in their food safety regulations; neither have INFOSAN or INFOSAN-Emergency been informed of any food safety emergencies in the country. The Division of Food Safety is the SPS National Enquiry Point (NEP) for food safety as well as INFOSAN contact point. While the NEP occasionally responds to enquiries from trading partners and business community, this has not been done in accordance with the requirements of WTO SPS Agreement. In fact, there is no record to indicate that Kenya has notified trading partners on existing national food safety regulations, and the link between food control agencies, food safety NEP and the National Notification Authority (NNA) is weak.

Equivalency and Other Food Safety Related Agreements

Equivalency here refers to alternative food safety measures proposed by an exporting country to an importing country which offer the same level of protection as those in use by the importing country. The basic requirement is that the national food safety services have the capability and authority to negotiate, implement and maintain equivalency and other food safety-related agreements with other countries regarding regulations, norms and processes under their mandates. The national food safety control system is able to negotiate and approve equivalency and other food safety related agreements with other countries for selected food products, in particular fish and fisheries products. Fisheries

programmes on fish safety and quality assurance are recognized by the European Union (EU). At regional level, Kenya and other EAC partner states have jointly come up with the EAC SPS Protocol which defines the equivalency arrangements in support of regional trade.

Risk Analysis

One of the weakest points in the Kenyan food control system is risk analysis –the assessment, management, and communication of risk. This calls for a capability to make decisions and take action based on scientific principles and evidence, including the assessment, management and communication of risk. The current status is that there is no official system that compiles data or other types of information that can be used to identify potential sanitary hazards and to analyse food safety risks. A food safety risk is the likelihood of manifestation and probable magnitude of the consequences of a prejudicial health incident produced by one or more hazards present in food products. As a consequence, sanitary decisions as well as policy and regulatory actions are not supported sufficiently by scientific information or evidence.

A starting point would be to compile and maintain sources of information or access to information necessary for hazard identification then establish systems for actively seeking and maintaining relevant data and information for risk assessment and use this information in the surveillance systems. This information is also necessary for effective participation in the work of Codex and its scientific bodies or national food safety policy making and standardization processes. Ultimately, risk analysis data is a justifiable basis for establishing more stringent conditions to address food safety concerns and protection of public health in line with the SPS Agreement.

Food Control, Inspection and Approval Procedures

Traceability in Food

An important aspect of quality and safety assurance is to be able to trace products, ingredients, suppliers, retailers, processing operations or storage procedures through the food production chain (FAO, 2009a). Traceability is the ability to trace the history, application or location of what is under consideration. The basic requirement is that national food safety services have the capability and authority to ensure, across the entire food chain that they can track the history, location, and distribution of any food and related covered by their mandates. The national food safety control system in Kenya has established procedures that can track selected food and related products across that portion of the corresponding food chain. However, majority of players along the food chain have not established traceability systems in their operations. The perception is that this is the responsibility of government agencies whereas it is the responsibility of all stakeholders along the food chain. Coordinated procedures for traceability, and which bring together relevant State institutions and the private sector, have not been put in place.

Food Safety Surveillance

It is necessary that food safety surveillance is maintained in an ongoing and systematic process of collection, analysis, and interpretation of food safety data as relates to potential problems in human health, which can be used to establish science-based policies, norms and standards based on risk. However, Kenya's institutions have not established an effective monitoring and surveillance programmes. Monitoring refers to

the performance and analysis of routine sampling to detect changes in human health, the environment or in the state of the food products.

There are efforts towards developing Residue monitoring and sampling plans for milk, honey and meat driven by DVS, while KEBS is driving development of Contaminant Monitoring Plans for processed foods including meat products, milk products, processed fruits and vegetables and animal feeds in line with their mandate. However, but the successful completion and implementation of these tools depends upon availability of sufficient financial and technical resources from regular Government budget. There is also a need to equip the existing food analysis laboratories with relevant equipment as well as training analysts on test methods and surveillance protocols.

Kenya developed a pesticide residue monitoring plan for fresh fruits and vegetables in 2014 as part of efforts to address the European Union (EU) concerns on Kenya's exports of beans and peas in pods to the EU. In 2012, the EU imposed stringent testing of green beans and pods at points of entry to the EU following increased incidences of pesticide residues in produce from Kenya. The residue monitoring plan is implemented by KEPHIS. In the fisheries sector, Kenya developed a residue monitoring plan for residues veterinary drugs in aquaculture fish as a pre-requisite to export farmed fish to the EU. The State Department of Fisheries (Fish Inspection and Quality Assurance) drives implementation of the residue monitoring plan for aquaculture.

There remains much scope of food products to be covered in the national monitoring plans. As a result, current surveillance programs for such products are based only on information from suspected cases. It is, therefore, necessary that sector-based food contaminant monitoring plans be developed and surveillance programs conducted based

on food contaminant monitoring results and clinical laboratory reports for the most prevalent hazards. The ultimate focus should be to execute integrated surveillance programmes throughout the entire food chain because they integrated surveillance programmes combine data from feed, animals, food and humans.

Food Testing

One of the key elements of a national food control system is the diagnosis and food analysis capability. Kenya has several bodies providing diagnostic and food analytical services. It is essential that national food safety services have sufficient capability and authority to identify and record those biological, physical, and chemical agents that can adversely affect public health and food safety. In terms of clinical diagnostics, the Ministry of Health (MOH) has various laboratories at national and county levels that can identify and report prevalence and severity of foodborne diseases. The MOH has further ranked national and county hospitals based on their capabilities to diagnose and treat a variety of diseases. There are also reference hospitals with varying capabilities for clinical diagnostics both in terms of equipment and medical laboratory personnel. It is important to note that Kenya has a devolved system of health services and there are also many private health facilities and laboratories with capabilities to carry out clinical tests and diagnostics, most of which are located in the hospital facilities.

For food-borne illnesses, the majority of medical facilities which are ranked up to Level 3 can carry out the clinical diagnosis, but not the laboratory confirmation. This is a big challenge particularly in rural areas where most foodborne diseases are prevalent. Yet the medical facilities in such areas remain only rudimentary with limited laboratory capabilities. Although it is possible to enhance clinical diagnostic services for the most

prevalent food-borne illnesses, the MOH at national and county levels has not developed a system that can collect samples anywhere in the country and immediately transport them for confirmation by a laboratory with necessary capabilities. It is also possible to establish a nationwide network of clinical laboratories coordinated through, for example, the National Public Health Laboratories.

In the case of new and emerging foodborne diseases, the national food control system has an established system to access national reference hospitals, but has not established formal mechanisms to access national or international reference laboratories, including collection and shipping of samples to the most qualified laboratory for confirmation. One positive aspect of the food control system in Kenya is the new trend towards promoting accreditation of laboratories. While not all foodborne disease diagnostic laboratories are accredited, there is a push, through the Kenya Accreditation Service (KENAS) to carry out auditing and assessment the quality of laboratories in Kenya against the requirements of quality of their clinical diagnostic, collection of samples and shipment procedures as defined in the ISO 15189 standard. The goal should be to ensure national network of laboratories have diagnostic quality assurance programs and provide reliable and up-to-date information on incidents of foodborne illnesses to the surveillance system.

With regard to food analysis, Kenya has not established a system that coordinates the identification of the most prevalent food hazards and poor practices that may lead to foodborne diseases. However, food laboratories provide testing services for products in conformity with appropriate standards or technical regulation or processes. Testing ranges from rather simple to highly sophisticated and complex methods. The laboratories

need to carry out their tests and analysis according to accepted international standards for laboratories.

Sectoral competent authorities often collect samples for analysis against established product specific standards. The food business operators (FBOs) often collect samples of their products for analysis against established national or private standards to ascertain that any food hazards present are within permitted levels. Although Kenya has not classified food analysis laboratories and designated reference centres for specific tests, there is a push towards accreditation of food laboratories on their quality management systems and specific scope of testing in accordance with ISO 17025 requirements.

Several laboratories in Kenya carry out recognised tests for prevalent foodborne hazards, but a formal network of such laboratories has not been established. In the public sector, the main bodies providing product testing services include the KEBS, KEPHIS and DVS. In the private sector, the main laboratories that provide food testing services include SGS, AgriQuest and Analabs. There are many other laboratories in Kenya providing food testing services for purposes such as learning or research. A number of enterprises also have in house quality control laboratories but are not accessible external users. In the case of new and emerging hazards, no formal mechanisms have been established to access international reference laboratories. However, within the capacity of individual laboratories, samples are collected and transported to the laboratory for confirmation of legal compliance or in conformity with specific product standards.

Overall, the main challenge with clinical diagnostics and food analysis in Kenya is that clinical diagnostic results and patient reports from different locations are seldom linked with what was observed and the source of the foodborne illness along the food chain.

Linkages between clinical reports and food value chains therefore have remained weak making it difficult to address recurrent foodborne diseases from a symptomatic approach. Kenya has not systematically reviewed public health reports from patient data or disease surveillance with practices along key agro-food chains. While government has established several food safety regulations for particular food products, the management and control of food safety hazards (microbiological, chemical and physical) in value chains are carried out by business operators in the relevant value chains. However, ensuring food safety to protect public health and promote economic development remains a challenge to all stakeholders.

Product Certification after Inspection/verification:

Inspection service has as its principle objective to ensure that food products meet their sanitary standards throughout the food chain. The aim is to prevent the contamination of food products along the food chain. Several bodies in Kenya provide certification of food products after inspection. In the public sector, Government regulatory agencies include MOH, AFA, KDB, DVS, Department of Fisheries and KEBS.

The MOH carries out a program of food inspection and verification of compliance with regulatory standards in selected products or specific processes, particularly for fish and fresh fruits and vegetables exports. The MOH and competent authorities in various agro-food sectors revise national regulatory standards and harmonize them with international standards, guidelines and recommendations. There are several public sector inspection bodies that check for compliance with regulatory food standards in Kenya, making food control in Kenya a multi-sectoral responsibility that brings together several ministries and departments. Public Health Officers, appointed under the Public Health Act (Cap 242)

section 9(1), carry out food inspections for purposes of public health protection. Public Health officers carry out their function in liaison with local authorities /county governments and sector-based food inspections in liaison with relevant competent authorities. They enforce relevant hygiene and food safety regulations in accordance with Cap 242 and Cap 254 (MOPHS, 2011).

At primary production level, the function of Public Health Officers overlap with those of other competent authorities along the food value chain, including Directorate of Veterinary Services (DVS), Kenya Dairy Board (KDB), Department of Fish Inspections and Quality Assurance (FIQA), and Agriculture and Food Authority (AFA). With regard to processed products, the MOH overlaps with the Kenya Bureau of Standards (KEBS) carries out food inspections of local products and imports, in accordance with the Standards Act (Cap 496). KEBS also conducts market surveillance to monitor the quality and safety of goods in the local market thereby protecting Kenyan consumers from sub-standard and unsafe products.

All imported food products are inspected at the point of entry by relevant competent authorities listed above in line with their respective mandates, but against domestic standards, regulations and procedures. For imported processed food, KEBS has in place inspection procedures that allow for pre-export verification of conformity (PVOC) in order to minimize undue delays at ports of entry (including Mombasa Sea Port, Jomo Kenyatta International Airport and various official border posts) without jeopardizing effectiveness of controls to meet requirements. In addition, KEBS has delegated PVOC inspections to the private sector bodies (e.g. Intertek, SGS and Inspection East Africa) to carry out inspections on behalf of Government of Kenya. Delegation of inspection

services is a practice adopted recently in Kenya to leverage on inspection competencies in the private sector, but overall responsibility for product certification remains with government.

For locally produced food products, the Government Inspection Bodies (the competent authorities) have procedures in place for registration and inspection of Food Business Operators (FBOs) for purposes of verification and inspection. Registration service is a government-regulated sanitary authorization for individual products or establishments that process, pack, transport or commercialize foods. For primary products the respective commodity inspection bodies register and issue an annual production permit to registered enterprises against the registration requirements. Although registration of primary producers ought to be done, the practice is currently limited to business enterprises supplying or manufacturing food.

The current approach to food inspection is the traditional reactive system based on existing regulations, standards or problems presented/perceived, rather than the modern risk-based inspection. The routine inspections and sampling are conducted to certify food for local consumption and assurance of compliance with national standards or regulations but rarely on a risk analysis framework that identifies possible hazards and associated risks. Besides, the inspection system in place is only capable of making periodic inspections, taking samples, and certifying food for local consumption, assuring compliance with national standards but it does not facilitate effective surveillance of prevalent food hazards along the value chain or facilitate industry self-regulation or auditing of food safety management systems by Government.

Assessment of Food Safety Management Systems

The assessment of the quality assurance system by a third party aims at assuring the purchaser that the Food Business Operator (FBO) has in place a viable and effective system that is capable of producing food products of consistent quality with little or no variation. It is a production management tool for controlling and monitoring variables in the food production process that lead to product defects. In Kenya, the best known food safety management system is the the implementation of the Hazard Analysis and Critical Control Point (HACCP) system. HACCP encourages the food industry and governments to target limited resources to the most critical steps of food production and distribution, rather than having to comply with a long list of product and procedure specifications as has been traditionally prescribed.

Although HACCP often requires reorientation of food safety authorities towards audit and training functions, rather than on physical inspection and laboratory analysis, the regulatory assessment of food safety management systems is not based on audits. Considering that HACCP does not completely eliminate the necessity for final product inspection, the concept of process control should be integrated into national food control programmes that focus official controls on critical points where failures can occur along the food value chain.

KEBS and several private sector certification bodies (such as SGS, Bureau Veritas, Africert, etc) carry registration or certification of enterprises to HACCP and other international food safety management systems such as ISO 22000 which is granted after an assessment is made by an independent third party that the system in place meets all the requirements. Subsequent periodic audits are made to ensure that the company continues to operate in accordance with the system. Overall, national food certification programmes

are in place, but audits of the certification programmes to ensure quality and confidentiality are seldom conducted.

In general, as shown in *Figure 4-2* below, the main strengths of the food safety control system is its ability to enforce compliance with food safety regulations; harmonization of food safety measures; and availability of food certification organizations in the public and private sectors. The main weaknesses of the food safety control system are its failure to meet transparency procedures and limited equivalency agreements with trading partners importing food from Kenya.

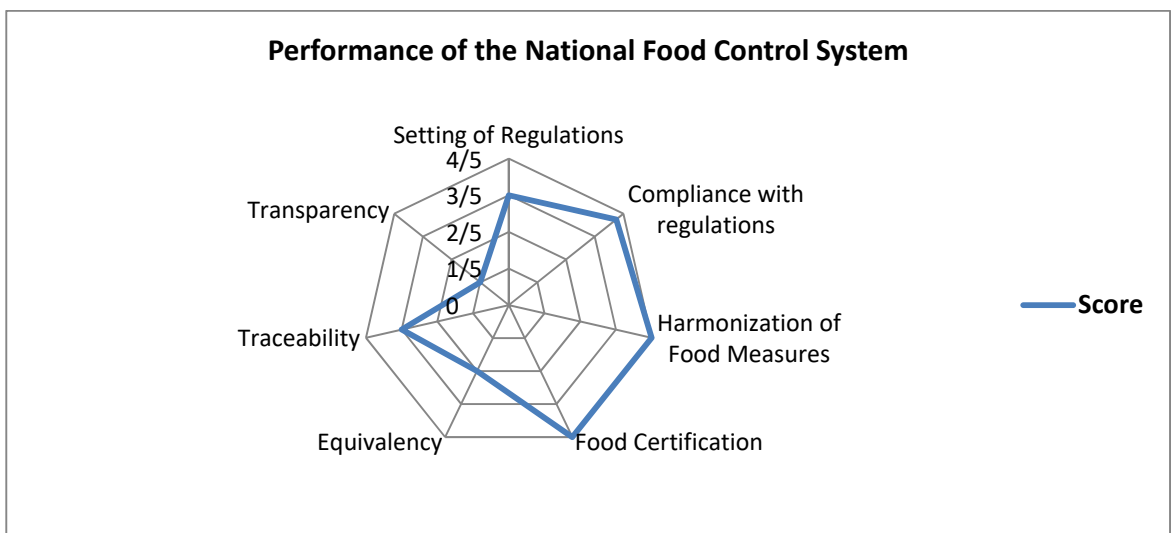


Figure 4-2: Performance of the National Food Control System in Supporting Market Access

4.3.2.2 Performance of the Animal Health Control System

Development of Animal Health Policies

Animal health policies in Kenya are covered in several policy documents, including: Agriculture Sector Development Strategy (2010-2020); National Livestock Policy (2008); National Beekeeping Policy; National Oceans and Fisheries Policy; and National Wildlife Conservation and Management Policy (2012). The overall animal health framework is contained in the National Veterinary Policy.

Kenya finalised the National Veterinary Policy (NVP) in 2015. The NVP provides a definite roadmap for the development of animal resources in Kenya. The NVP outlines practices, processes and guidelines to counteract challenges in the management, utilization and trade in animal resources as one of the leading contributors to national GDP. SPS related challenges addressed by the NVP include a weak animal disease management capacity, poor infrastructure for animal, low compliance with sanitary measures, and an underdeveloped SPS institutional capacity. The NVP provides a basis for the review and consolidation of existing laws and enactment of new ones for the governance of the animal resource industry and a framework for institutional arrangements that will enhance synergy among various actors in the public and private sectors in order to develop, to protect and to conserve animal resources for the benefit of humanity. Kenya is still in the process of developing strategies for implementation of the National Veterinary Policy.

Establishment of Animal Health Regulations

The mandate of the State Department of Livestock under the Ministry of Agriculture, Livestock and Fisheries is to promote, regulate and facilitate livestock production for

socio-economic development and industrialization in accordance with the Animal Diseases Act (Cap 364) (MOLD, 2012). The State Department has two directorates: Directorate of Animal Production and Directorate of Veterinary Services (DVS). The DVS was established to prevent and control animal diseases and pests in order to safeguard human health, improve animal welfare, increase livestock productivity, ensure high quality livestock and their products and facilitate domestic and international trade.

The main Acts of Parliament giving this mandate include the Animal Diseases Act Cap 364; the Meat Control Act Cap 356 (Rev. 1980); the Fertilizer and Animal Feedstuff Act Cap 345; the Dairy Act Cap 336; and the Crop Production and Livestock Ordinance Act Cap 321. DVS prepares and submits bills of law for approval and drafts animal health regulations, applying procedures that take into account the opinions of stakeholders and international standards, guidelines and recommendations. DVS has recently spearheaded the development of the National Veterinary Policy, and a bill defining the operational mandates of veterinary professionals and para-professionals in Kenya.

Compliance with Animal Health Regulations

The DVS implements supervision programs consisting of inspection and verification of compliance with relevant regulations relating to all products and processes under its mandate. Over the years, DVS has carried out regulatory functions to ensure that stakeholders are in compliance with the relevant animal health regulations. This is done through implementation of supervision programs consisting of inspection and verification of compliance with relevant regulations relating to all animal products and processes under its mandate and, if necessary, imposes penalties for non-compliance. Beyond

animal production and animal health, DVS also participates in food safety programmes under its veterinary public health function.

Export and import of animals and animal products is regulated by DVS. An import permit is issued after fulfilment of Kenya's sanitary requirements. Depending on an assessment of risk, animals may be held in approved quarantine facilities with regular veterinary inspection, followed by a health clearance certificate affirming the tests, clinical examinations and, where applicable, treatment undertaken during quarantine. Similarly, the DVS ensures that exports of animals and animal products are inspected and a health certificate issued to ascertain compliance with importing country sanitary requirements.

Harmonisation of Animal Health Regulations

DVS formulates and recommends for approval national animal health legislation and to establish regulations for processes and products under its mandate, as well as the scope of such regulations. However, the capacity to conduct a scientific risk analysis in accordance with OIE guidelines is limited. For this reason, Kenya's animal health regulations are based on relevant OIE international standards. DVS pursues harmonization to ensure that national regulations under its mandate are consistent with OIE and Codex standards, guidelines and recommendations. For food safety, DVS participates in the Codex Committee on Residues of Veterinary Drugs in Food (CCRVDF) and is a member of the National Codex Executive Committee in Kenya.

DVS participates in regional programmes on harmonization of animal health regulations within the EAC, COMESA and IGAD SPS frameworks. DVS is now using harmonized EAC Animal Health Measures and periodically reviews national animal health

regulations in order to have them harmonized with international requirements. DVS also participates actively in AU-IBAR's programmes, including the "VETGOV project" and the "Standards, Methods and Procedures in Animal Health (SMP) Project" whose objective is to enhance veterinary governance in Africa and promote trade by use of harmonized standards, methods and procedures in animal health.

Animal Health Certification

DVS certifies the services, products and processes under its mandate in accordance with national animal health regulations and with international standards, guidelines and recommendations. DVS implements a certification programme for specific products, services or processes, including for imports and exports of birds, mammals, bees, as well as for fish and fishery products. For trade in animals and some animal products, an official veterinarian inspects the consignment prior to export. In order to assure safe international trade, veterinary inspectors from DVS issue a veterinary health certificate according to the arrangements agreed between the Veterinary Authorities of the exporting and importing country. DVS has official procedures for authorization of certifying veterinarians and ensures that relevant instructions and training are provided. In addition, in order to ensure their integrity and impartiality, certification is coordinated centrally at the capital (Nairobi). As the certification process is largely manual, this poses logistical challenges and causes delays at the ports of entry and exit.

Equivalence Agreements and Other Agreements Related to Animal Health

The DVS has the authority and capability to negotiate and approve equivalence agreements and other types of agreements related to animal health with other countries, in accordance with the regulations, standards and processes under its mandate. The DVS has successfully applied the principle of equivalence to facilitate trade. This applies to

imports from EAC partner states on live animals (cattle, goats, chicks, pets, horses) and animal products, including honey, milk and feedstuffs. The DVS has also entered trade cooperation with Iran on equivalence of animal health measures, and with Mauritius on animal trade. Within the EAC and IGAD, DVS has negotiated and implemented animal health agreements on cross-border trade with Uganda and South Sudan. Within COMESA, the DVS has agreements on cattle trade with Zambia and meat trade with Egypt. For SADC, there exists an agreement on dairy (cheese) trade with South Africa. Beyond Africa, the DVS has a meat trade agreement with the United Arab Emirates (UAE).

Animal Traceability

The DVS has limited capability and authority to trace the history, location and distribution of animals and animal products under its mandate. Some animal species or their selected products can be traced along the corresponding agrifood chain through livestock trade and movement documentation. Traceability systems are more reliable where industrial production of livestock products is linked with organized livestock production systems, and in particular large farms. DVS participates in various livestock traceability programmes with private sector as well as intergovernmental organizations (IGOs). DVS is participating in a number of AU-IBAR's programmes including LITS (Livestock Traceability Systems). The EAC Animal Health Measures (for terrestrial and aquatic animals) include a requirement to implement traceability systems along livestock value chains.

Transparency of Animal Health Regulations

The DVS makes attempts to notify the WTO, the OIE and trading partners, of national regulations and all emergencies with actual or potential international importance, in accordance with established procedures. The DVS partially notifies the WTO SPS Committee and the OIE of relevant changes in Kenya's animal health regulations, and notifies the OIE of the country's sanitary status. The DVS houses Kenya's National Enquiry Point (NEP) for animal health and the OIE contact point. Although the DVS notifies OIE regularly, the WTO is infrequently notified on animal health measures through the official National Notification Authority (NNA) channels. However, the DVS receives unrestricted WTO notifications & other documents.

Regionalization, Compartmentalization and Zoning

The national veterinary service has established procedures for defining areas suitable for regionalization, zoning or compartmentalization and for determining the health status of *selected* animals or animal products. Kenya recognizes regionalization and has institutionalized it in the Vision 2030 development framework driven by the need to promote trade. DVS is rolling out implementation of disease free zones in the country, starting with parts of the Coastal region.

Overall, the performance of Kenya's veterinary services has been improving over the years with implementation of international standards, guidelines and recommendations. However, a lot more investment is needed to strengthen key market access requirements such as traceability systems as well as regionalization, compartmentalization and zoning as illustrated in Figure 4-3 below. Further investments are needed to implement measures to open up sensitive, but high value markets in the EU and USA. Kenya will also need to review animal health transparency procedures in line with both WTO SPS Agreement

and the OIE by being proactive and informing trading partners and stakeholders on changes in sanitary status Kenya and conditions for trade in a timely manner. The performance of Kenya's animal health institutions is summarized in *Figure 4-3* below.

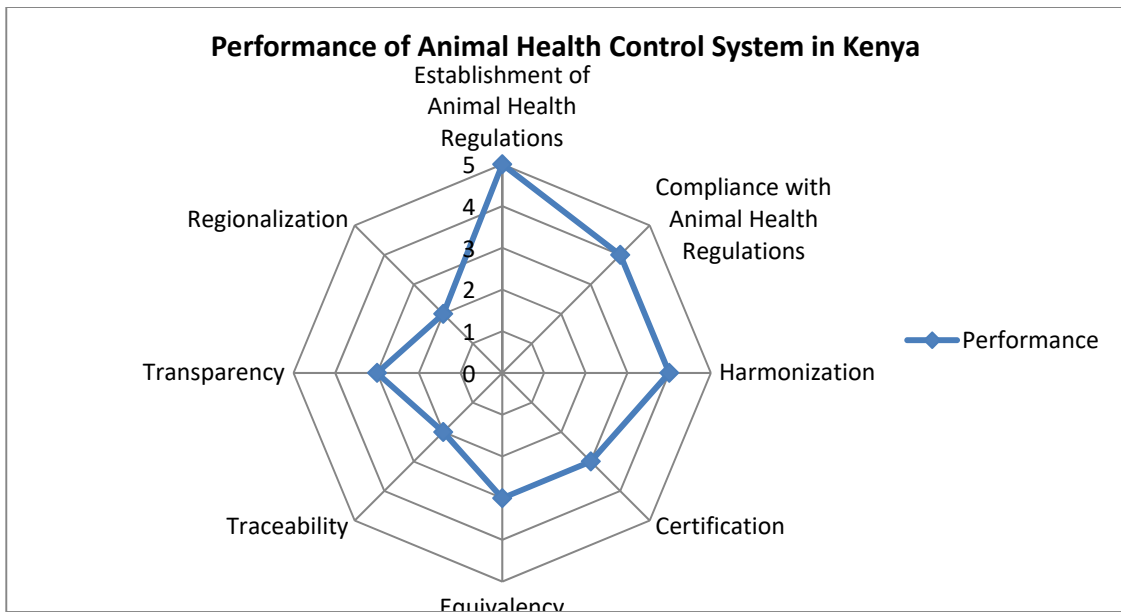


Figure 4-3: Performance of Animal Health Control System in Kenya

4.3.2.3 Performance of the Plant Health Control System

Development of Phytosanitary Policies

Kenya does not have an overall policy on plant health or phytosanitary matters. Besides, Kenya has not established a National Biosafety Policy framework that will help the country to develop measures to protect the country from damage that may be caused by entry, establishment and spread of alien pests and diseases. The current framework for plant health in general and phytosanitary matters in particular is covered under the Agriculture Sector Development Strategy (ASDS). The ASDS defines frameworks for phytosanitary controls and recognizes the Kenya Plant Health Inspectorate Service (KEPHIS) as the sole national plant protection organization. Despite the importance of phytosanitary matters in forestry, the policy does not put emphasis on phytosanitary matters, particularly in managing forest pests and invasive alien species.

Setting of Phytosanitary Regulatory Norms

The phytosanitary measures in Kenya include pertinent laws, decrees, regulations, prescriptions, policies and procedures. The State Department of Agriculture (MOA) is mandated to promote and facilitate production of food and agricultural raw materials for food security and incomes; advance agro-based industries and agricultural exports; and enhance sustainable use of land resources as a basis for agricultural enterprises (MOA, 2013).

National laws supporting implementation of the SPS Agreement in general and plant health in particular include the Agricultural Produce Act Cap 319; the Plant Protection Act Cap 324; the Suppression of Noxious Weeds Act Cap 325; the Seed and Plant Variety Act Cap 326; and the Pest Control Products Act Cap 346. KEPHIS as Kenya's

NPPO has the flexibility and legal framework necessary to formulate and adopt phytosanitary regulations for processes and products covered under its mandate.

Compliance with Phytosanitary Regulatory Norms

Key SPS-support State Corporations under the MOA include the Kenya Plant health Inspectorate Service (KEPHIS), the Pest Control Products Board (PCPB), and corporations for specific agricultural sub-sectors. Kenya has, therefore, adopted a multi-agency approach in ensuring compliance with phytosanitary regulatory norms, although KEPHIS is the designated National Plant Protection Organization (NPPO) in accordance with the “Plant Protection Rules” under Legal Notice No. 108 issued on 17th July 2009. The Legal Notice requires importation of plants, plant product and regulated articles to conform to set rules. In general the NPPO implements a compliance programme consisting of inspection and verification of regulatory norms for all products covered under its mandate, but not all processes are currently inspected or verified.

Harmonization of Phytosanitary Regulations

KEPHIS is active in the harmonization processes in order to ensure that national phytosanitary regulations are in conformity with relevant international standards. Apart from monitoring the establishment of new international standards, guidelines and recommendations KEPHIS periodically reviews national regulations in order to harmonize them with appropriate international and regional standards, guidelines and recommendations. Since its establishment in 1996, KEPHIS has participated in the review of the Plant Protection Act (Cap 324) leading to enactment of subsidiary legislation including Legal Notice 108 of 17th July 2009 on Plant Protection Rules (Importation of Plants, Plant Products and Regulated Articles) Rules.

Moreover, KEPHIS is active in reviewing and commenting on draft regional and international standards, guidelines and recommendations, and participates regularly in international meetings organized by IPPC and WTO SPS Committee. At the continental level, KEPHIS regularly attends meetings organized by the AU/IAPSC which is also the Regional Plant Protection Organization (RPPO) for Africa, and AU-IBAR which has driven projects promoting participation of African Nations in Standard setting activities. At the regional level, KEPHIS participates in standards harmonization processes in COMESA, the EAC and the COMESA-EAC-SADC Tripartite FTA. KEPHIS played a key role in development and harmonization of EAC phytosanitary measures which are contained in *Volume I* of EAC SPS Measures which are an integral part of the EAC SPS Protocol. In addition, KEPHIS is the centre of phytosanitary excellence (COPE) for the COMESA region.

Phytosanitary Certification

KEPHIS carries out certification programmes for selected and new agricultural products, services and processes. For imports, all plants, plant products or regulated articles are required to conform to set rules as defined in the Plant Protection Rules, 2009, for which authority is vested upon KEPHIS. Some of the phytosanitary certification activities run by KEPHIS include certification of imports; phytosanitary certification for research materials and commercial commodities; inspection of ports of entry/exit; on-farm inspections including visits to quarantine sites. KEPHIS provides analytical chemistry laboratory testing services (Plant Protection Rules 2009); seed testing under the Seed and Plant Varieties Act (Cap 326) and plant quarantine services. In addition, KEPHIS is the centre of phytosanitary excellence (COPE) for the COMESA region and issues

phytsanitary certification for all plants, plant products (and commodities) and regulated articles destined for export or re-export in accordance with the phytosanitary requirements of importing countries.

Plants imported for planting purposes, under a quarantine permit may, if necessary, be detained in quarantine or in special nurseries for observation before commercialization. All imported seeds should be accompanied by an Orange ISTA (International Seed Testing Association) certificate or equivalent, confirming that it has been produced under internationally accepted standards for seeds. In addition, seeds must meet phytosanitary standards relating to control of quarantine diseases. Plant materials arriving in Kenya without authorization and accompanying documents are intercepted and either destroyed or held until the correct documentation is produced, or shipped back at the owners' cost. KEPHIS has a well-equipped plant health diagnostic laboratory in Nairobi, which is supported by skilled personnel. On pest surveillance, KEPHIS has established an early warning system for detection of pests thanks to the Government of The Netherlands, under the World Summit on Sustainable Development (WSSD) initiative, and FAO. To this end, electronic pest (e-pest) surveillance software has been installed at KEPHIS, and e-pest surveillance hand-held gadgets issued to horticultural growers to collect pest data.

Plant Health Equivalency Agreements

In general KEPHIS has not been sufficiently proactive in negotiating and approving equivalency agreements with trading partners. No mutual recognition agreements have been signed between Kenya and trading partners on procedures for ascertaining compliance with phytosanitary standards. This has led several major trading partners to

require “sameness” rather than equivalence in standards and procedures for inspection, testing and even certification. KEPHIS and the World Agroforestry Centre of ICRAF (International Centre for Research in Agroforestry) have developed the “International Plant Germplasm Exchange Protocol” that will allow for recognition of equivalence with countries from which the germplasm is imported.

Traceability in Plant Health

On traceability, KEPHIS inspects and documents the phytosanitary status at specific points across the agri-food chain for both imported and domestically produced seed, as well as for horticultural produce destined for exports. KEPHIS does not currently have the human and financial capacity to wholly track the history, location and distribution of plants and their related products covered under its mandate but has procedures in place to keep documentation on official inspections.

Transparency

KEPHIS has both the capability and authority to notify IPPC and trading partners on Kenya’s phytosanitary status in accordance with procedures of WTO/SPS committee and the IPPC. KEPHIS is the SPS National Enquiry Point (NEP) for plant health matters in Kenya. The NEP receives enquiries and responds directly to those making enquiries. The NEP corresponds directly with other NEPs within the country and those outside of Kenya while making or responding to enquiries. The NEP has a designated officer and is well equipped with communication facilities including a computer, telephone, fax, printer, photocopier and scanner.

KEPHIS notifies IPPC directly in accordance with IPPC requirements. However, KEPHIS does not respond directly to foreign notifications, as this is a function of the National Notification Authority (NNA), which is the Ministry of Trade. Whenever there is a new phytosanitary measure to be notified, the notification is consolidated and channeled through the NNA. A view of the SPS IMS system shows that Kenya has issued only one phytosanitary notification between January 1995 and December 2012 (WTO, 2013).

Regionalization

KEPHIS has not established any pest free areas (areas in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained). In addition KEPHIS has not identified areas to be regionalized, and neither has current phytosanitary status for most plants in the country been established. This makes it difficult to implement control measures that enable the establishment of pest-free areas or areas of low pest prevalence for selected plants and related products. Some studies have been conducted to establish areas of low fruit-flies prevalence in order to promote trade of commodities like avocado and mangoes, but recommendations have not been implemented.

Figure 4-4 below shows the strengths and weaknesses of Kenya's plant health control system. The NPPO is weak in complying with obligations for regionalization and equivalency agreements but performing relatively well in harmonization of phytosanitary measures. This implies that the phytosanitary control system is able to facilitate and promote trade in regional markets where harmonization has taken place. However, more effort is required to support market access to sensitive markets for which equivalency

agreements and arrangements are necessary. Overall, there is much scope for upgrading and strengthening the system, particularly in light of increased regional integration and international trade. However, if the system is not upgraded, Kenya's participation in global agro-food trade may be threatened as many importing countries abroad continue to demand proof of compliance with their national SPS regulations.

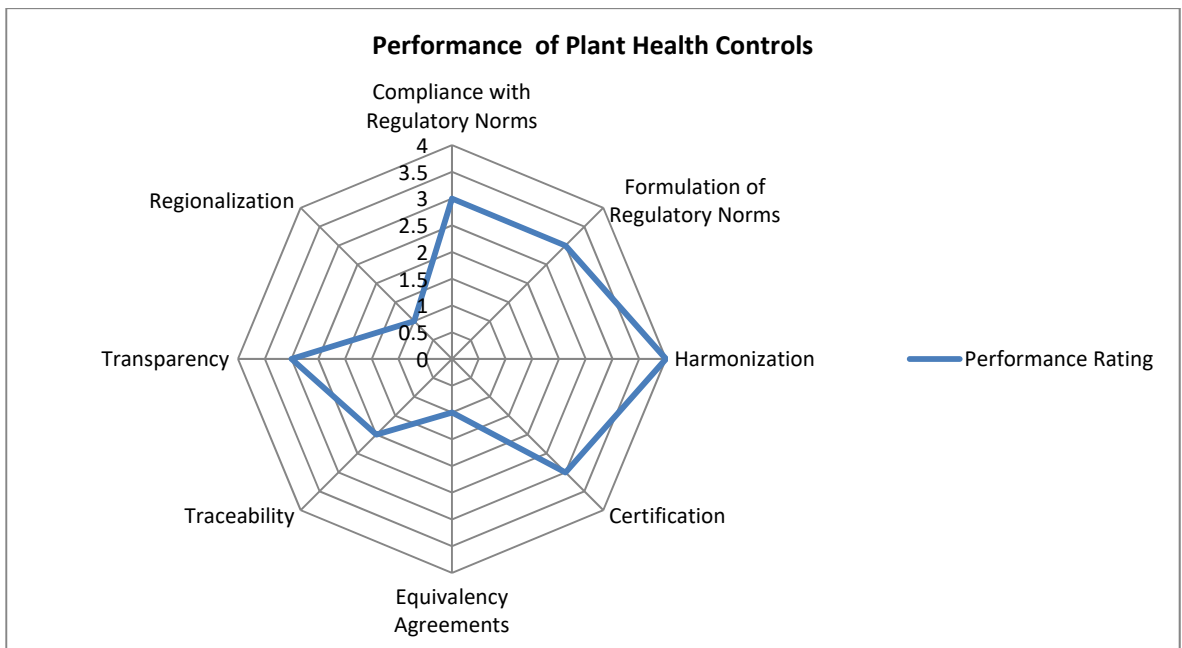


Figure 4-4: Performance Rating of Plant Health Control System in Kenya

4.3.2.4 Performance of Kenya's SPS Coordination Mechanisms

Kenya is member country of the World Trade Organization (WTO) since 1 January 1995 (WTO, 2012a), following the conclusion of the Uruguay Round of multilateral trade negotiations and the signing of the Marrakesh Protocol to the General Agreement on Tariffs and Trade (GATT 1994) on 15th April 1994. Implementation of the WTO SPS Agreement in Kenya is a responsibility of multiple bodies in the public and private sector. The State Law Office keeps a catalogue of all legal instruments with regard to WTO, but the Ministry of Foreign Affairs and International Trade houses the WTO Reference Centre (RC). Kenya's institutional arrangement for implementation of the WTO SPS Agreement includes mainly public sector bodies, with involvement of private sector bodies through technical committees. Kenya's institutional arrangements under WTO are summarized in *Error! Reference source not found.* below.

Table 4-7: Kenya's Institutional Arrangements with the WTO

Ministry	Department	Responsibility
Ministry of Foreign Affairs and International Trade	Kenya Mission in Geneva	Liaison on Kenya's obligations at WTO
	Department of International Trade	WTO Reference Centre
	Department of International Trade	National Notification Authority (NNA) Implementation of Kenya's obligations with WTO
Ministry of Health	Ministry of Health- Division of Food Safety and Quality	National Enquiry Point (NEP) for Food Safety
Ministry of Agriculture, Livestock and Fisheries	State Department of Livestock-Directorate of Veterinary Services (DVS)	National Enquiry Point (NEP) for Animal Health
Ministry of Agriculture, Livestock and Fisheries	State Department of Agriculture-Kenya Plant Health Inspectorate Service (KEPHIS)	National Enquiry Point (NEP) for Plant Health

Information

The Ministry of Foreign Affairs and International Trade (MOFA) hosts the WTO Reference Centre (RC) established in Kenya on 20 June 2011 in order to facilitate international relations in trade. A WTO RC serves two purposes: (1) to provide Government officials, business and the academic communities with a dedicated physical location where any relevant information on the WTO can be accessed; and (2) to enable beneficiaries of the country to obtain trade-related information resources on the WTO Internet site, trade and tariff data bases, as well as documents, and to facilitate access and use of e-Training Programmes proposed by the WTO (WTO, 2012b).

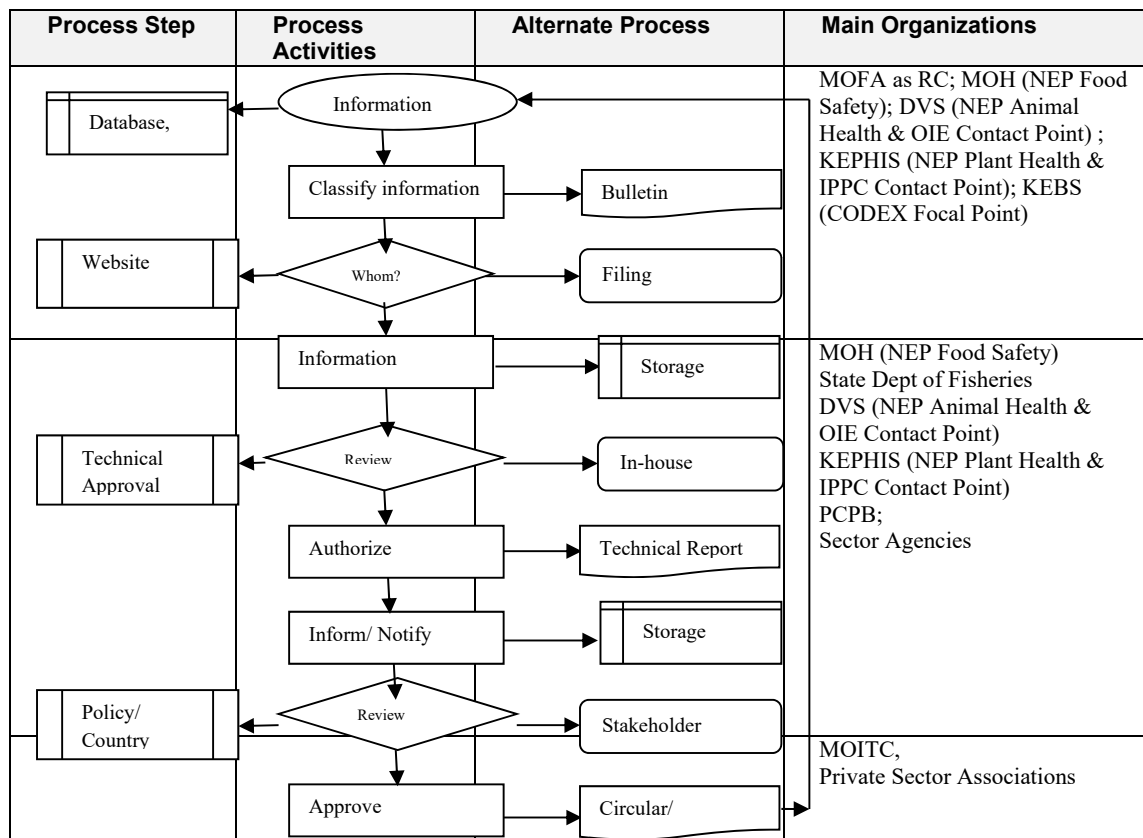


Figure 4-5: SPS Internal Communication Process

The RC was established to strengthen Kenya’s capacity to participate actively in the work of the WTO and the multilateral trading system. Since its establishment, the RC has not published any periodicals to show the results of activities and programmes, as well as

new national and international standards. Furthermore, there is currently no dedicated webpage in the Ministry of Foreign Affairs and International Trade where users of the RC can obtain information electronically. Therefore, although Kenya has had a WTO RC since 2011, the capacity of the public sector institutions to timely and actively disseminate SPS news and developments to users is inadequate.

Internal Communication

Figure 4-5 summarizes internal communication within the public and with private sector. As part of the performance contracting, the public sector in Kenya is increasingly focusing on enhanced internal communication. The public sector largely initiates and promotes dialogue internally and with users concerning existing and proposed regulations. The public sector now largely embraces collaboration with the private sector concerning SPS programmes and review of SPS regulations. The Kenya Bureau of Standards (KEBS) has recently driven the process of reviewing the Standards Act (Cap 496) and the development of the National Quality Policy through the Ministry of Industrialization and Enterprise Development. The Department of Livestock and the Department of Agriculture have had strong inter-ministerial communication and coordination in the development of the new Veterinary Policy and the Food Security and Nutrition Policy.

External Communication

The Ministry of Trade is the designated government agency to serve as the national notification authority (NNA), and is responsible for issuing notifications on the country's trading requirements and to respond to foreign notifications by providing a common country position. In addition, Kenya has established three SPS *national enquiry points (NEPs)* from which information can be obtained by the governments of other countries

and by interested business firms on SPS measures adopted or proposed to be adopted. The Division of Food Safety and Quality of Ministry of Health is the NEP for Food Safety matters. The Department of veterinary Services (DVS) of the Ministry of Livestock is the NEP for Animal Health, while the Kenya Plant Health Inspectorate Service under the Ministry of Agriculture is the NEP for Plant Health matters.

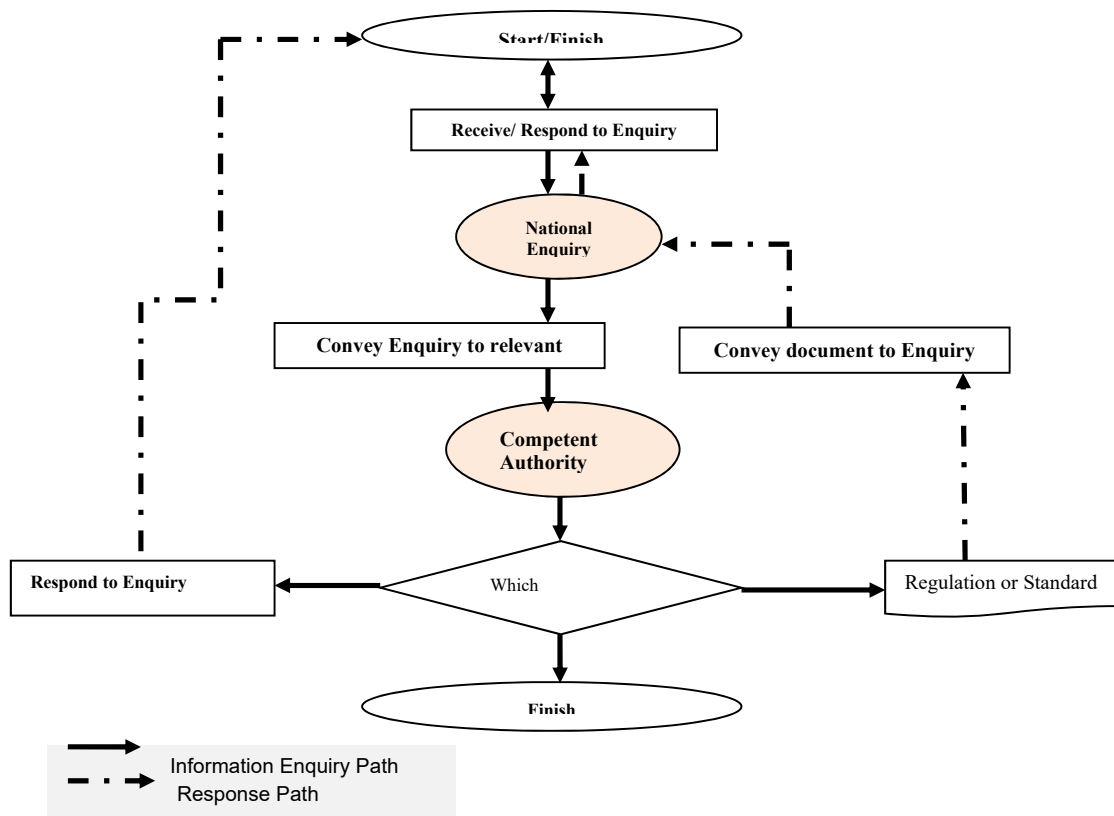


Figure 4-6: Information Flow on SPS Enquiries

Once a NEP receives an SPS enquiry, it is channelled to the relevant Competent Authority (CA) for response. Based on the nature of enquiry, the CA may respond directly or provide the required technical information, standard or regulation through the NEP. Technical decisions are made only by relevant technical institutions. In the majority of cases, the NEP is located within SPS competent organizations. This means that most information exchange regarding SPS enquiries is internal to the organization, except

when sectoral forums are called. *Figure 4-6* above summarizes communication channels with regard to SPS enquiries in Kenya.

Kenya has not been active in passing on information on SPS notifications, although the SPS agreement requires that a country notifies its trading partners on all new or modified SPS measures, even if they are based on international standards. This can be attributed to a lack of national legal framework and defined procedures on inter-ministerial SPS information exchange. SPS competent authorities fall under the Ministries of agriculture, livestock and fisheries and have no legal obligation to report SPS information and notifications through the Ministry of Trade which is the NNA. For this reason Kenya does not comply fully with the transparency obligations under the SPS agreement. Even in responding to foreign notifications, important deadlines are often not met because the National SPS Committee which deliberates on SPS notifications meets only on ad hoc basis.

External communication by the public sector with the private sector regarding participation in international organizations is highly informal. The agendas of the International organizations involved in SPS are only occasionally shared with private sector, for specific commodity standards. There is rarely any communication among the contact points of international organizations (MOITC, KEBS, DVS and KEPHIS) on their participation international meetings.

Official Representation

Kenya participates regularly in meetings of all international organizations in SPS such as the WTO SPS committee, IPPC, OIE and Codex Alimentarius. While IPPC and OIE

meetings are attended by officials from KEPHIS and Ministry of Livestock respectively, attendance to the Codex meetings attracts representation from Ministries of Health, Livestock Development, Fisheries Development and Agriculture as well as from technical organizations such as KEBS, KEPHIS and DVS. Attendance to WTO SPS Committee is mainly by Ministry of Trade representatives in Geneva with an additional delegate from KEPHIS or Ministry of Agriculture. However the role played during the meetings is, in most cases, passive as there are seldom any adequate preparations for these meetings at country level, and neither is there active intervention by preparation of proposals to be discussed during the meetings. Only in situations where there is an SPS related crisis does the public sector organize forums to get opinions of private sector and play strong advocacy in international meetings of WTO SPS committee, IPPC, OIE and codex Alimentarius.

Coordination Mechanisms

Kenya established the National SPS Coordination Committee in on 17th September 2008. Since then the committee has been meeting at least 3 times annually, prior to meetings of WTO SPS Committee in Geneva. There have been attempts to have the meetings take place every 2 months but lack of substantive agenda and limited financial resources have not made this possible. The secretariat of the National SPS Coordination Committee is at the Ministry of Trade (MOT) but the chair rotates between the three SPS technical institutions- MOPHS, DVS and KEPHIS. The Committee has well-defined terms of reference but has not developed annual work plans to guide the agenda and activities of the committee. *Figure 4-7* below shows the coordination arrangements in place for SPS compliance.

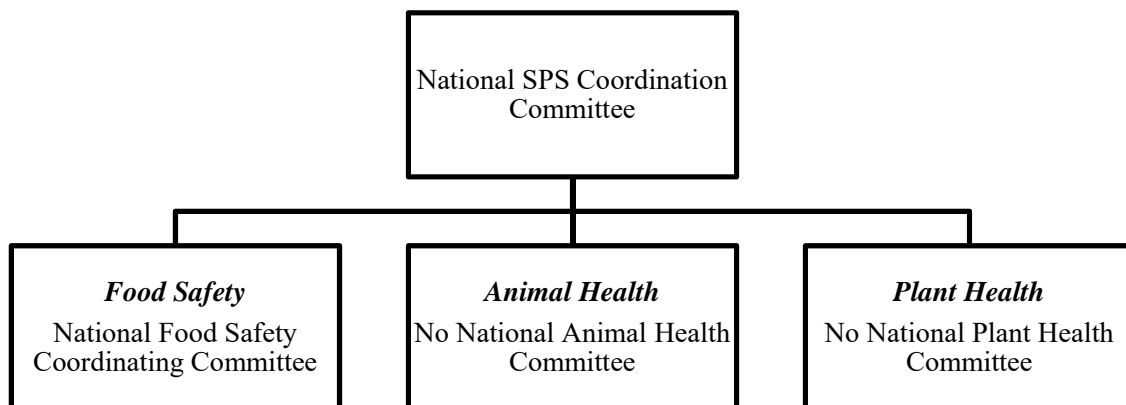


Figure 4-7: Institutional Structure of Kenya's SPS Coordination System

Kenya has no formal committees related to the three sister ISSOs, except for the National Codex Executive Committee (NCC) whose agenda is largely quality standards development and to provide policy oversight for consumer protection and fair practices in food trade rather than food safety. For this reason, the National Food Safety Coordination Committee (NFSCC) was established in 2007. However, the constitution of the NFSCC currently does not include private sector because it was established to fill the gap that existed due to a lack of a single agency responsible for food safety controls in the country. Furthermore, there is no clear connection and collaboration between the National Codex committee and the NFSCC.

There are no technical committees for animal health and plant health dealing directly with SPS. However, due to the high priority placed on horticultural industry in Kenya, the National Task Force on Horticulture (NTFH) was established to deal with policy and strategic issues affecting the sub-sector. The NTFH addresses diverse issues affecting Kenya's horticultural produce, including market access challenges. Kenya is currently working on enhancing SPS coordination mechanisms in the country, and proposals have

been made to establish technical sub-committees of the National SPS Coordination Committee that will deal with technical aspects of food safety, animal health and plant health linked directly with Codex, OIE and IPPC respectively.

Coordination between the Capital and the Mission in Geneva

Kenya has a permanent diplomatic and trade Mission in Geneva, Switzerland through which communication and deliberations on Kenya's obligations at the WTO are coordinated. Back at the capital (Nairobi) the Ministry of Trade is the official focal point for matters relating to WTO. The Ministry of Trade liaises with the Geneva based mission for participation in the meetings of WTO as a forum for negotiations both in the Ministerial Council and in various technical committees including the WTO SPS Committee. Kenya established a WTO Reference Centre (RC) on 20 June 2011 at the Ministry of Foreign Affairs in order to facilitate international relations in trade. The WTO RC is expected to strengthen the capacity of Kenya to participate more actively in the work of the WTO and the multilateral trading system.

Kenya established the Permanent Inter-Ministerial Committee (PIMC) in 1995 to advise government on all matters pertaining to the WTO. However, the PIMC excluded participation from private sector and other key stakeholders. Thus, the National Committee on WTO (NCWTO) was established in 1997 as a mechanism for government to engage with private sector and civil society on WTO matters. The NCWTO is also the main trade coordinating committee in Kenya and has strong link with the Kenya mission in Geneva. However, there is no clear link or collaboration between the National SPS coordination Committee and the NCWTO. The Capital (Nairobi) and Geneva based mission do not communicate in a fluid manner about technical issues or maintain

permanent interaction in relation to WTO SPS Committee. The National SPS Coordination Committee, through the Ministry of Trade coordinates only in an ad hoc manner with the Mission in Geneva in cases of emergency or in special occasions that may arise in relation to WTO SPS Committee.

Priority Assigned to SPS Matters

Although there are many SPS concerns with traded commodities, Kenya has not conducted a detailed assessment of the SPS situation in the country. There is, thus no agenda or annual work plan on activities related to WTO SPS Committee and SPS ISSOs. Moreover the country has not developed an SPS policy or reviewed the agriculture, health and trade policies for coherence.

Table 4-8 summarizes the strengths, weaknesses, opportunities and threats of the SPS public-private partnership in Kenya. Overall, the performance of the institutional arrangements for interaction within the public sector and with the private sector is sub-optimal. In particular, priority given to SPS issues within the country appears to be low, thus affecting the efficiency of SPS institutions in both the public and private sectors. Information dissemination, communication and official representation at the WTO SPS Committee, Codex, OIE and IPPC is ad hoc, although key contact offices such as the WTO RC, NEPS and NNA have been established. The establishment of the national SPS coordination committee is likely to improve the interactions performance, but the capacity gaps in the current institutional structure calls for urgent attention.

Table 4-8: SWOT Analysis of Kenya’s SPS Public-Private Partnership

Core Competence	Strengths	Weaknesses
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Information dissemination	The public sector has an official means where users can enquire about standards, regulations and notifications through WTO RC, NEPS and NNA.	The public sector does not periodically publish the results of activities and programs, as well as new national and international standards
Communication	The public sector maintains informal internal communication and with the private sector.	The public sector rarely organizes forums and meetings with the users to establish new or improve existing programs and services.
Official Representation	The public sector is present sporadically, or plays a passive role, in the meetings of the WTO/SPS Committee, the OIE, the IPPC, and the Codex Alimentarius.	The public sector rarely holds consultation with its users to identify strategic issues and has not assumed the leadership in coordinating the national delegations, or to promote the inclusion of these strategic issues in the agendas of WTO/SPS Committee, OIE, IPPC and Codex Alimentarius meetings.
Coordination Mechanism	Kenya has established a national SPS coordination committee in which the public and private sectors participate and which defines the country's positions	The national SPS coordination committee does not meet regularly for coordination regarding meetings of the WTO/SPS Committee and of the three "sisters." Linkages to WTOSPS committee, OIE, IPPC and Codex are weak
Priority assigned to SPS Issues		Kenya has not established an agenda of important issues related to the WTO/SPS Committee and the three "sisters."

Kenya should take advantage of opportunities for technical assistance as provided for by the SPS Agreement and bilateral cooperation. There are also opportunities to expand trade in the in the African continent through harmonisation and mutual recognition of procedures for control, inspection and approvals. The new Constitution of Kenya, 2010 offers a great opportunity to review SPS institutions in Kenya, and it is often good to "hit when the iron is still hot". However, Kenya must rise above existing and emerging SPS challenges affecting regional and international trade. Greater priority should be given to SPS matters in government agenda and budgeting processes.

4.4 Conclusions

Kenya is well endowed with agricultural resources, which offers a basis for developing high value agricultural value chains. However, there are several SPS concerns affecting Kenya's agro-industry products which have not been addressed effectively and in a timely manner. This has placed a burden on Kenya's national SPS organizations to demonstrate that Kenya's agro-food exports comply with international SPS rules and conditions that eliminate risks to human, animal and plant life and health. A strong SPS compliance system is likely to open up new or expand existing regional and international markets for Kenya. For this reason it is necessary to understand the SPS institutional arrangements in the country and the flow of SPS related information to actors in all levels of key agro-food value chains.

Compliance with the SPS Agreement is governed mainly through the following international organizations: The World Trade Organization (WTO); Codex Alimentarius Commission (CAC); the World Organization for Animal Health (OIE); and the International Plant Protection Convention (IPPC). Kenya is a member of the African Union Commission (AUC) and several Regional Economic Communities (RECs), including the following: the Common Market for Eastern and Southern Africa (COMESA); the East African Community (EAC); and the Inter-Governmental Authority on Development (IGAD). Key organizations covered under the institutional arrangements at national level include the Ministry of Industry, Trade and Cooperatives; Ministry of Agriculture, Livestock and Fisheries; Ministry of Health; Kenya Bureau of Standards (KEBS); Kenya Plant Health Inspectorate Service (KEPHIS); and Pest Control Products Board (PCPB).

In general, Kenya's SPS related policies have not addressed current SPS related concerns in detail. The policies have not clearly defined the need to conduct SPS risk assessments; identification of risk management options and roles of SPS institutions; and mechanisms for updating SPS regulations and control procedures. In addition, definition of functions of institutions involved in surveillance, testing, inspections and approval activities for goods traded have not been properly elaborated. There is also disharmony between policies that promote agriculture, health and trade, which may make it difficult to make SPS decisions.

Food control in Kenya is a multi-sectoral responsibility, giving at least four Government Ministries the mandate to set food safety regulations. The main ministries include the following: Public Health and Sanitation, Agriculture, Livestock Development, Fisheries Development. Key strengths of the food safety control system is its ability to enforce compliance with food safety regulations; harmonization of food safety measures; and availability of food certification organizations in the public and private sectors. The main weaknesses of the food safety control system are its failure to meet transparency procedures and limited equivalency agreements with trading partners importing food from Kenya.

The performance of Kenya's veterinary services, a key mandate of the Department of Veterinary Services (DVS), has been improving over the years with implementation of OIE standards, guidelines and recommendations. However, a lot more investment is needed to strengthen key market access requirements such as traceability systems as well as regionalization, compartmentalization and zoning. Further investments are needed to implement measures that will open up sensitive, but high value markets in the EU and

USA. Kenya will also need to review animal health transparency procedures in line with both WTO SPS Agreement and the OIE by being proactive and informing trading partners and stakeholders on changes in sanitary status Kenya and conditions for trade in a timely manner.

Delivery of national plant health services, a core responsibility of the Kenya Plant Health Inspectorate Service (KEPHIS), requires rapid strengthening. KEPHIS, which is also the National Plant Protection Organization (NPPO) and IPPC contact point, is weak in complying with obligations for regionalization and equivalency agreements. However, it is performing well in regional harmonization of phytosanitary measures. This implies that the phytosanitary control system is able to facilitate and promote trade in regional markets where harmonization has taken place, but more effort is required to support market access to sensitive markets for which equivalency agreements and arrangements are necessary. Overall, there is much scope for upgrading and strengthening the system, particularly in light of increased regional integration and international trade. However, if the system is not upgraded, Kenya's participation in global agro-food trade may be threatened as many importing countries abroad continue to demand proof of compliance with their national SPS regulations.

As for coordination mechanisms involving national SPS organizations, the performance of the institutional arrangements for interaction within the public sector and with the private sector is sub-optimal. In particular, priority given to SPS issues within the country appears to be low, thus affecting the efficiency of SPS institutions in both the public and private sectors. Information dissemination, communication and official representation at the WTO SPS Committee, Codex, OIE and IPPC is ad hoc, although key contact offices

such as the WTO RC, NEPS and NNA have been established. The establishment of the national SPS coordination committee is likely to improve the interactions performance, but the capacity gaps in the current institutional structure calls for urgent attention.

In general, the performance of the Kenyan SPS institutional arrangements to ensure compliance with the SPS agreements and SPS conditions of trading partners is sub-optimal. Kenya has already invested a lot to secure the existing SPS institutional arrangement in the country, but there remains much scope to improve and strengthen the system. The benefits of investment in SPS standards compliance infrastructure and an enhanced SPS coordination system may go well beyond access to regional and international markets. It also leads to improved regional cooperation and integration through trade. This is especially true in the case of COMESA, EAC, and IGAD, which are important destinations for Kenya's agro-food exports.

However, supporting agro-food value chains to comply with SPS requirements calls for a gradual approach in promoting the agro-industry (Jaffee & Morton, 1995), including strategies and framework conditions necessary to facilitate cross-border collaboration and access to markets (Henson & Cranfield, 2009). In all these regional trade arrangements, SPS regulations are increasingly being imposed on agricultural and food products being traded. Supporting SPS Compliance would therefore open up markets for Kenya's agro-food exports in the different regional economic communities (RECs), as well as with industrialised countries globally.

4.5 Institutional Choices (Recommendations)

There is much scope to improve Kenya's SPS institutional environment and arrangements for effective implementation of the SPS Agreement and protecting health and life. This requires setting apart national annual budgetary allocation from government, but also a deliberate effort to attract technical assistance from development partners. Some of these choices can be implemented only with an enabling institutional environment through updating of SPS relevant legislation. While investing in the national SPS compliance system the following choices could be considered jointly and progressively:

1. Setting of Regulatory Standards

There is need to review the legal framework to give public sector SPS entities flexibility and framework for development of SPS regulatory measures. In particular, the review of SPS laws should aim at facilitating safe agro-food trade, including mechanisms for supporting the private sector, inspection and verification of products, as well as certification in line with established regulatory norms. In addition, procedures that take private sector's opinions should be developed to support implementation of the new SPS laws should be developed.

2. Compliance with Regulatory Norms

In order to ensure compliance with regulatory requirements that fall within their mandate, the public sector SPS organizations should carry out a program of inspection and verification that ensures that the regulatory standards are complied with by all products and processes within its mandate. This may call for a review of existing legislation to redefine mandates of government SPS agencies to allow for imposition of sanctions in

case of non-compliance, and to allow for regular audits of the inspection and verification programmes of the public sector SPS institutions.

3. Harmonization of Standards

Although harmonization of regional SPS standards has been largely achieved through the EAC and COMESA SPS frameworks, the public sector SPS entities should participate actively at international level in the meetings and activities of WTO SPS committee, Codex, OIE and IPPC, in order to ensure that national SPS regulatory standards conform to international SPS standards, guidelines and recommendations.

4. Transparency

The national SPS institutions should notify WTO totally about new or revised national SPS regulations even if they comply with international standards, guidelines and recommendations. In particular, the WTO has so far not been notified on national food safety regulations and changes in SPS entities in Kenya. In addition, the public sector entities should constantly inform users about new and changes in existing national SPS regulations and in the SPS regulations of other countries where trade exchange exists. The public sector should also audit its transparency procedures to ensure they are in line with WTO SPS Agreement as well as with OIE, IPPC and Codex requirements.

5. Technical Cooperation and Special and Differential Treatment

The public sector should establish a permanent consultation mechanism to systematically identify and prioritize relevant technical assistance and special and differential treatment and negotiate them with development and trading partners. Internal mechanisms

enabling the public sector, in conjunction with the private sector, to identify and prioritize technical assistance needs and negotiate special and differential treatment, should also be put in place.

6. Information Sharing and Communication

The public sector should periodically publish the results of SPS activities and programmes, as well as new international standards. In this regard it is necessary to strengthen the WTO Reference Centre (RC), SPS National Enquiry Points (NEPs) and National Notification Authority (NNA) through technical and human resource capacity development. This should include establishing an electronic system, such as improving the website, where users can obtain the latest SPS information. The public sector should also maintain fluid and constant communication within and with the private sector through sectoral forums and inter-sectoral committees about SPS policies, programmes and participation in the activities of international SPS organizations. In addition, Kenya should review SPS coordination mechanisms and give priority to public-private linkages and cooperation with international SPS organisations.

CHAPTER 5 REGIONAL SPS FRAMEWORKS: IS THE EAST AFRICAN COMMUNITY DOING ENOUGH?

A Policy and Institutional Analysis

5.1 Introduction

5.1.1 Background

Kenya subscribes to the charter of African Union (AU) and has been an active member since joining in 1964, when it was the Organization of African Unity (OAU). Kenya has also actively participated in the transformation of OAU to the African Union (AU). Kenya is also a member of several regional economic communities (RECs) in Africa, notably the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Intergovernmental Authority Development (IGAD). Kenya is in the forefront in supporting trade relations with Southern Africa Development Cooperation (SADC) through the tripartite COMESA-EAC-SADC Free Trade Area. Although these frameworks have increased opportunities for Kenya's agro-food trade, they also influence Kenya's performance in international trade.

The East African Community (EAC) is the regional intergovernmental organization of the Republics of Burundi, Kenya, Rwanda, Uganda, and the United Republic of Tanzania. The Community was first established in 1967 by Kenya, Tanzania and Uganda, but collapsed in 1977. The new Treaty for the Establishment of the East African Community (EAC Treaty) was signed in Arusha on 30 November 1999 (EAC, 1999) and entered into force on 7th July 2000 following the ratification by the three original partner states –Kenya, Tanzania and Uganda. Upon the entry into force of the Treaty, the East African Community came into being. The Republic of Rwanda and the Republic of

Burundi acceded to the EAC Treaty on 18th June 2007 and became full Members from 1st July 2007.

The broad aim of the EAC as outlined in the EAC Treaty is to widen and deepen cooperation among the partner states, as well as with other regional economic communities (RECs) in, among others, political and socio-economic fields for their mutual benefit. The objectives of the EAC are to develop policies and programmes aimed at widening and deepening co-operation among the Partner States in political, economic, social and cultural fields, research and technology, defence, security and legal and judicial affairs, for their mutual benefit. In this regard the Partner States of the EAC undertook to establish among themselves and in accordance with the provisions of the EAC Treaty, a Customs Union, a Common Market, a Monetary Union and ultimately a Political Federation. These frameworks are expected to strengthen and regulate the industrial, commercial, infrastructural, cultural, social, political and other relations of the Partner States.

The overall objectives of co-operation in the agricultural sector are the achievement of food security and rational agricultural production within the Community. To this end, EAC Partner States undertook to adopt a scheme for the rationalisation of agricultural production with a view to promoting complementarity and specialisation in and the sustainability of national agricultural programmes in order to ensure: a common agricultural policy; food sufficiency within the EAC; an increase in the production of crops, livestock, fisheries and forest products for domestic consumption, exports within and outside the EAC and as inputs to agro-based industries within the EAC; and post-harvest preservation and conservation and improved food processing.

In terms of promoting trade with non-EAC trading partners, all EAC partner states are also members of the World Trade Organisation (WTO) and the African Union (AU), and belong to at least two RECs. Kenya and Uganda are members of the Inter-Governmental Authority on Development (IGAD); Burundi, Kenya, Rwanda, and Uganda are members of the Common Market for Eastern and Southern Africa (COMESA); and Tanzania belongs to the South African Development Community (SADC). Kenya and Tanzania also participate in the Indian Ocean Rim-Association for Regional Cooperation (IOR-ARC). Burundi and Rwanda similarly participate in the Economic Community of Great Lakes Countries (CEPGL). EAC countries also benefit from non-reciprocal preferential treatment from many trading partners under the Generalized System of Preferences. Tanzania is the only EAC country signatory to the Agreement on the Global System of Trade Preferences (GSTP) among Developing Countries.

The EAC countries are currently involved in trade negotiations under the AU Continental Free Trade Area (CFTA), the COMESA-EAC-SADC Tripartite Free Trade Area (TFTA) negotiations; the EAC and European Union (EU) Economic Partnership Agreement (EPA) negotiations; and the WTO negotiations under the Doha Development Agenda (DDA). They concluded the Trade and Investment Framework Agreement (TIFA) with the United States of America (USA) in July 2008.

5.1.2 The Issue

While the EAC provides many opportunities for its partner states in terms of improving food security and promoting trade exchange, plant & animal health and public health food safety concerns present a major threat to achievement of the regions food security & nutrition objective. It is recognised that crop, livestock and fisheries production are

critical to the region's food security (FAO, 2009b). However, plant and animal diseases and pests, as well as post-harvest contamination of food have opened major leakages on the regions food security reserves. In addition, SPS regulations established by importing countries of food and agriculture products from the EAC region are eating into the gains of trade within the EAC and between EAC partner states and other regions. As a consequence trade in plants, animals and their products is hampered significantly by increasing stringency of standards established to address SPS risks associated with such products.

Crop pests including diseases, insects, and weeds must be overcome in order to meet current and future food and nutrition security needs of the EAC. Most threatening are outbreaks of migratory pests because of their sudden emergence, often without or with limited warning, triggered by changing ecological conditions or agricultural practices which favour an explosive increase in the pest population and its rapid spreading into neighbouring areas. Over the years, there have been unexpected appearances of massive pest outbreaks of migratory pests such as the Desert Locust (*Schistocerca gregaria*) and armyworms (*Spodoptera* spp; & *Mythimna* spp) in the EAC region with far-reaching threats.

There are also crop specific pests with heavy negative impacts on food security. For cereals, major pests of concern include the wheat rust diseases (*Puccinia graminis*), and Maize Lethal Necrotic Disease (MLND). In root and tuber crops, Cassava Mosaic and Brown Streak virus diseases continue to affect the main food crop – cassava. Potato Blight (*Phytophthora infestans*) is also a major constraint in the production of

potatoes and related crops in East Africa. During storage, the Larger Grain Borer (*Prostephanus truncates*) is a serious pest of maize and cassava.

Cultivation of perennial food security crops like bananas is threatened by major pests such as banana wilt diseases and weevils. There are also increased losses arising from aflatoxins and other chemical and microbial hazards of public health concern in food. Production of industrial crops such as coffee and cotton calls for costly chemical control methods, making the products expensive and less competitive at the market. Coffee Leaf Rust (*Hemilaea vastatrix*) is the most important disease of coffee worldwide has remained a major constraint in coffee production in East Africa, while presence of coffee wilt disease (*Fusarium xylarioides*) in the region threatens coffee plantations, because the only way to halt it is by adopting a scorched-earth policy of pulling up all trees in infected plots and then waiting a year before replanting. The production and quality of cotton has also been hampered significantly by the stubborn African bollworm (*Helicoverpa armigera*).

One of the major hindrances to increased animal production in the EAC is the occurrence of animal disease especially transboundary animal diseases (TADs) (EAC, 2011). The region in past has recorded occurrences of TADs (EAC, 2006a; FAO, 2012b; FAO, 1996a; Nderitu, et al., 2011). In 2010 a regional meeting of Chief Veterinary Officers (CVOs) identified nine animal diseases as priority TADs in East Africa, including (FAO, 2010a), including Peste des petits ruminants (PPR), Rift Valley Fever (RVF), Foot and Mouth Disease (FMD), Contagious Bovine Pleuropneumonia (CBPP), Newcastle Disease (ND), Highly Pathogenic Avian Influenza (HPAI), Contagious Caprine Pleuropneumonia (CCPP) and Rabies . An update of the disease situation 2012 by OIE confirmed the same

diseases as priority TADs for East African Region, including African Swine Fever (ASF) (OIE, 2012). As a consequence of TADs, there have been long-standing quarantine measures amongst the EAC countries regarding the movement of livestock among EAC countries.

While EAC has developed a clear roadmap to integration and achievement of its objectives, the benefits of intra-EAC trade in agricultural and food products have not been fully realised because EAC partner states continue to impose diverse non-tariff measures (NTMs), particularly sanitary and phytosanitary (SPS) measures on imported agricultural commodities and food products. Furthermore, EAC partner states have had challenges in exporting agricultural commodities and food products that comply with SPS regulations of importing countries.

There are numerous food safety concerns arising from consumption of unsafe food. Food safety concerns emanate mainly from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs produced and traded in the region. In cereals and nuts, the main concern is mycotoxins which have caused several deaths in the region. High cyanide levels in certain varieties of cassava constitute a food safety concern affecting food security and trade. There are also increased concerns about antimicrobial resistance (AMR) in East Africa. There have been increased epidemics of typhoid in East Africa, as a result of trade due to AMR (Crump, 2016; Wong, et al., 2015; Feasey, et al., 2012; Ahmed, et al., 2014; Lopman, 2015; Kiulia, et al., 2014; Mans, et al., 2016; Munjita, 2015; WHO, 2015).

In horticultural produce, there are concerns of pesticide residues both in produce exported and that consumed at home. Production of horticultural crops suffers heavy attack of pests which, in addition to reducing quality of produce, also pose food safety risks in relation to residues of pesticides and possible transmission of harmful organisms through trade pathways. Among the main pests of concern on horticultural produce in East Africa includes *Tuta absoluta* (Meyrick) of tomatoes, a variety of *Helicoverpa spp* on various horticultural crops, and fruit flies. Exports of flowers, fresh fruits and vegetables to high value markets, including the EU and USA remains a challenge due to a complex of supply-side constraints and weak capacities to comply with SPS requirements for these markets (UNIDO, 2006b; UNIDO, 2010).

Further, poultry products from EAC region are not currently allowed entry to the EU countries due EU import restriction on poultry products from countries with risk of Avian Influenza. Export of meat and meat products, despite the existing potential, is insignificant due to inability to meet requisite sanitary standards (EAC, 2006a).

SPS concerns have also affected EAC trade in fish and fisheries products. In the late 1990s, the fisheries industry suffered a ban by the European Union (EU) on Nile Perch imports from Lake Victoria. Kenya, Uganda and Tanzania suffered a ban on Nile perch fish exports to European countries three times, approximately once after every two years, in 1996 to 2000 due to unacceptable level of pesticide residues and prevalence of *Salmonella* and cholera outbreaks inconsistent with EU directive 91/493/EEC on production and placing in the market of fishery products.

It is necessary, therefore, to understand the policy and institutional frameworks for compliance with various SPS standards in order to promote agro-food trade. Failure to review current SPS institutional frameworks may derail the overall achievement of EAC integration objectives, and could deny EAC partner states international market access for agricultural and food exports and gains of existing preferential schemes.

5.1.3 Objectives of this Section

The main objective of this section was to provide an analysis of the EAC institutions for control and management of SPS risks. The specific objectives of this study are:

- 1) To map out EAC SPS policy and institutional environment governing food and agricultural trade of EAC Partner States
- 2) To assess the performance of the SPS institutional arrangements and coordination mechanisms in supporting agricultural and food trade of The EAC
- 3) To identify the different institutional choices available to enhance the performance of EAC SPS system

5.1.4 Questions addressed

- 1) What SPS policies, laws and regulatory frameworks are in place to support EAC partner states implement the WTO SPS?
- 2) How effective is EAC SPS institutional environment in supporting trade in agricultural and food products in the EAC?
- 3) What recommendations can be implemented to improve EAC SPS institutional Environment to enhance agro-food trade?

5.1.5 Scope of study

The study focuses on SPS policy and institutional frameworks of the EAC. The study focused on key agro-food value chains in the EAC region –Fish and Fishery Products; Fresh Fruits and Vegetables; Livestock and Livestock Products; and processed foods. The study does not focus on failures in the EAC SPS institutional environment, but rather the ability of the system in place to support regional and international trade in food and agricultural products.

5.2 Research Method

5.2.1 Research Design

This research was conducted using institutional analysis –a qualitative research technique which involves investigative methodologies and emphasizes the importance of looking at variables in the natural setting in which they are found. The utilised information gathered through open ended questions where the interviewer was an integral part of the investigation, as a primary collection instrument.

5.2.2 Research Population and Sample

The study was conducted within the EAC region, targeting the EAC Secretariat and public sector institutions in EAC partner states. The EAC secretariat was targeted to provide an understanding of the institutional environment at regional level, while the partner states provided information on SPS compliance within the partner states. The researcher used the sampling frame shown in Table 5-1 below for the study.

Table 5-1: Sampling Frame for Analysis of SPS Institutional Environment

	Trade	Food Safety	Animal Health	Plant Health
EAC level	EAC Secretariat (Customs and Trade)	EAC Food Safety Experts	EAC Animal Health Experts	EAC Plant Health Experts
National Level	Ministries of Trade; Foreign Affairs	Food Safety Organizations in the public sector	Animal Health Organizations in the public sector	Plant Health Organizations in the public sector

5.2.3 Validity of the Method

An assessment of the various trading contexts and frameworks can provide an understanding of the performance of the institutional environment. This is because particular policy decisions may contribute to specific results, either in the form of livelihood outcomes of the people of the EAC, or delivery and governance results both at regional and national levels. Similarly, understanding EAC SPS legal framework, including the different SPS laws, rules and regulations that are in place, as well as the processes by which these are established and enforced, can help in establishing how events and processes within the EAC SPS arena are played out.

5.2.4 Research Instruments

The study used focus group discussions, workshops and interview of key informants for data collection. The researcher also reviewed secondary data sources including reports, policies, laws and regulations. For data analysis the following tools were used: International Fund for Agricultural Development (IFAD, 2008); Inter-American Institute for Cooperation on Agriculture (IICA) Tool (Ledezma & Peña, 2008), and Natural Resources Institute (NRI) Toolkit for SPS Institutional Analysis (Kleih, et al., 2012c).

5.2.5 Methodological Steps

The study followed a four step generic model for institutional analysis: institutional structure, institutional efficiency, institutional choice, and institutional change as suggested by Herrera, *et al.* (2005), which is an enhancement of Williamson's three-step model (Williamson, 1996). *Figure 5-1* summarizes the methodological steps used in this study for institutional analysis adapted from (Herrera, et al., 2005):

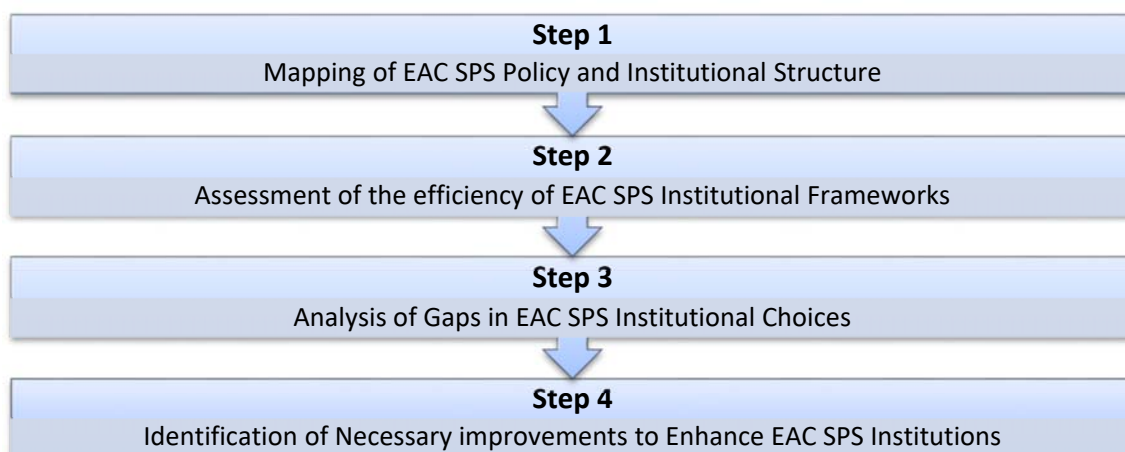


Figure 5-1: Summary of Methodological steps for Institutional Analysis

Step 1: Description of the Structure of SPS Institutional Environment of the EAC

This first step consisted of understanding, through a detailed description, the functioning of the institutional structure underlying the EAC SPS institutional environment, in particular the policy and legal contexts at regional and national levels. The objective was to have a deep idea of the current situation of the structure, actors and rules of the EAC that conform to the WTO rules-based trading system.

Step 2: Assessment of the Efficiency of SPS Institutional Environment of the EAC

The second step consists of assessing the efficiency of the institutional structure. The objective is to relate efficiency to performance. However, since performance is a derivative of the institutional choice, it may be impossible to test which institutional alternative performs better (Schmid, 2004). The focus therefore was on assessing the current institutional structure to see whether this is producing socially and economically desirable outcomes. If not, this would suggest the need to depict a new institutional setting. The approach included the identification of efficiency criteria, which allowed the qualification of the competence of the SPS institutional setting of the EAC.

Step 3: Identification of Gaps in SPS Institutional Environment of the EAC

The third step was to conduct a gap analysis of the SPS institutional setting of the EAC. An analysis of strengths, weaknesses, opportunities and challenges to the SPS institutional environment was conducted. The analysis of gaps was based on assessment of performance criteria in *Step 2* above.

Step 4: Proposals for Improvements in SPS Institutional Environment of the EAC

The purpose of this last step was not to predict the future, but to inform the EAC of the choice of a particular institutional setting and how the existing political institutions can be used to implement such changes. The focus was to identify necessary institutional choices that can contribute to improve the SPS institutional setting. In this regard, institutional alternatives suggested here are recommendations that the EAC can depict and choose to order their interdependencies between the EAC, partner states and their trading partners. This implies that the actual choice of arrangements may have an impact over the SPS institutional environment of the EAC or the partner states or both. Our approach to institutional choice implies the design of a set of arrangements which should procure the interaction of individuals, either for improving the performance of the day-to-day use of the resource, or to build a more feasible institutional environment.

5.3 Findings and Discussion

5.3.1 Mapping of EAC SPS Policy and Institutional Frameworks

5.3.1.1 Availability of Relevant SPS Policies:

The roadmap of the EAC integration process influences and provides a basis for SPS policy formulation within the EAC. The SPS policy environment of the EAC comprises of SPS policies at the regional level as well as national SPS policies in EAC partner states, and cuts across the agriculture, health and trade sectors. A variety of regional policies have been developed, including the EAC Development Strategy; Agriculture and Rural Development Policy, Strategy and Action Plan; Private Sector Development Strategy; and Export and Investment Promotion Strategies. At the national level, EAC partner states have developed and are implementing their agriculture, health and trade policies. Trade is understood to be the cornerstone of EAC integration. As such EAC partner states have undertaken to develop and adopt an EAC Trade Regime and co-operate in trade liberalisation and development.

Several documents define the SPS policy framework of the EAC. The EAC Treaty provides the overall SPS policy, legal and regulatory frameworks. Although Article 108 specifically provides for cooperation in the control of plant and animal diseases, the EAC Treaty does not mention food safety. The following documents are specifically relevant to the EAC SPS policy context: EAC Customs Union Protocol; EAC Common Market Protocol; EAC SPS Protocol; and EAC Agriculture and Rural Development Policy and Strategy. These documents define SPS policy framework and set the stage for generating SPS agenda within the EAC.

Table 5-2: Mapping of EAC SPS Policies

	Regional Level	National Level				
	EAC	Kenya	Tanzania	Rwanda	Uganda	Burundi
Overall SPS Policies & Strategies	Agriculture and Rural Development Policy (ARDP); Agriculture and Rural Development Strategy (ARDS)	Vision 2030; Medium Term Development Strategies; Agriculture Sector Development Strategy (2010-2020) Kenya National Trade Policy (2009)	Vision 2025; Poverty Reduction Strategy Paper (PRSP);	Vision 2020	Vision 2040	Vision 2025
Plant Health Policies		NONE	NONE	NONE	NONE	National agricultural Strategy, 2008
Animal Health Policies		Kenya Veterinary Policy	National Livestock Policy, 2006	NONE	NONE	NONE
Food Safety Policies and Strategies	NONE	Kenya National Food Safety Policy	NONE	NONE	NONE	NONE

The EAC Treaty outlines the overall goal of cooperation in agriculture as “the improvement of the overall well-being of the people whose principal occupation and way of life is based on agriculture and its derivatives” in order to achieve food security and rational agricultural production. EAC Partner States therefore have undertaken to develop a scheme for rationalisation, improvement and commercialisation of agricultural production and rural development with a view to promote complementarity and

sustainability of rural life. The ARDP was developed as an initial step towards operationalizing the agriculture-related provision of the Treaty.

The Agriculture and Rural Development Strategy outlines the various actions identified for accelerating development of the sector, which include: improving food security; accelerating irrigation development; strengthening early warning systems against climatic hazards; strengthening agricultural research and training; and improving trade infrastructure and utilities. In animal production, the policy aims at, *inter alia*, developing a common regulatory framework to monitor livestock production, trade in livestock products and inputs, and animal disease and pest control; and promoting value addition (EAC, 2006a).

The EAC Food Security Action Plan identifies the main constraints to food security in EAC countries (EAC, 2006b), and provides for implementation and coordination arrangements; monitoring and evaluation; and resource mobilization for its implementation. The plan highlights the need for: adopting harmonized SPS measures to tackle the frequent bans on food imports in intra-EAC trade, as these measures separate surplus food production from the deficit markets; improving infrastructures in rural areas; and developing insurance instruments for agriculture. The plan is scheduled for implementation during 2011-2015 period guided by the Sectoral Council of Ministers Responsible for Agriculture and Food Security.

5.3.1.2 Formal Mechanisms for Generating SPS Policies:

The EAC uses the Linear Model to generate policy. The Linear Model sees policymaking as a ‘problem-solving process’ that is rational, balanced, comprehensive, analytical and linear (IFAD, 2008). This rational perspective sees policy as ‘speaking truth to power’

(Keeley, 2001) – issues are seen largely as amenable to technical analysis and solution (Grindle & Thomas, 1990). In this model, the process of SPS decision-making can be viewed as being comprised of consequent stages, beginning with agenda-setting in line with the EAC Treaty and followed by decision-making by Council of Ministers and implementation jointly by the EAC Secretariat and EAC partner states. SPS policy implementation is seen as a separate activity, beginning after the decision has been made. And as clearly put by Pasteur, if policies do not achieve their intended objective, then the fault is not in the policies themselves but in faulty implementation, lack of resources or lack of adequate support from the political and bureaucratic establishment (Pasteur, 2001).

5.3.1.3 Mechanisms for Implementation of EAC Policies

The EAC implements policies through strategies. The first Development Strategy (1997-2000), focused on re-launching the EAC; the second (2001-2005) focused mainly on the establishment of the EAC Customs Union; and the third (2006-2010) prioritized the establishment of the EAC Common Market. The current Development Strategy runs from July 2011 to June 2016, and focuses mainly on implementation of the EAC Common Market and establishment of the EAC Monetary Union. It identifies seven priority areas to be addressed, with a view to implementing the common market, consolidating the Customs Union, and enhancing productive capacity and competitiveness, including establishing framework conditions for compliance with SPS requirements.

There are, however, gaps that exist between policy-setting and implementation and have caused occasional delay in implementation of policy decisions. For example, the roadmap for integration envisaged a gradual transition with timelines from a customs union,

common market, monetary union and political federation has stretched beyond initial timelines. The common market in particular has experienced implementation challenges mainly related to SPS related within the EAC.

There are formal processes within the EAC that adjust the implementation of policies when timelines are unachievable. The Council of Ministers reviews implementation processes and makes recommendations to the Heads of State Summit in accordance with provisions of the EAC Treaty. The EAC Secretariat is tasked with responsibility to coordinate the implementation, including follow-up with partner states. In fact, the EAC requires each partner state to have a Ministry directly responsible for implementation of EAC policy decisions at national level.

5.3.1.4 Feedback Mechanisms on SPS Policy Implementation

The EAC has a clear feedback mechanism about implementation of SPS policies and their impacts in order to inform policy makers on progress and influence future policy decisions. In each partner, there is a Ministry responsible for coordination of EAC affairs and report back to the EAC Secretariat on progress made in implementation. The EAC has also created a monitoring mechanism for non-tariff barriers imposed by partner states which reports frequently on new NTBs and how decisions on previously NTBs have been addressed.

5.3.1.5 Harmonisation of SPS Policies

A comparison of EAC SPS policies reveals a clear linkage and cross referencing. This harmonisation has been achieved largely through reference to relevant provisions of the EAC Treaty and progressive reference to other relevant policy documents. However, a

review of different sectoral policies reveals a potential conflict and incoherence between the agriculture, trade and health policies, particularly with regard to organisation structures and coordination of SPS issues. Food safety matters appear to shift between the agriculture, trade and health dockets at the EAC Secretariat and this has affected definitions of food safety frameworks at partner states level. To cover for this inadequacy, an informal inter-sectoral SPS coordination team has been formed at the secretariat for harmonisation, but a legal mechanism for coordination of SPS matters is anticipated in the future as indicated in the SPS protocol. Moreover, the individual obligations of partner states as members of WTO does not require them to report to the regional structures, while the EAC mechanisms have not done much to create harmony and enhance SPS coordination.

Table 5-3: Analysis of EAC Policy Environment

Parameter	Assessment Criteria	Findings
Relevant SPS Policies	Availability of policies relevant to the SPS context	EAC Treaty; Agriculture and Rural Development Policy No harmonised regional trade policy. National Trade Policies are not harmonised at regional level
Mechanisms for generating SPS policy	Formal mechanisms which generate policy, including: 1. Mechanisms for identifying how policy agendas are set 2. Kinds of information (and their sources) that feed into policymaking 3. Process of consultation leading to policy formulation 4. Form of policy statement produced 5. Roles played by different actors in these processes	1. Policy agendas are set based on provisions of the EAC Treaty 2. Information that feeds into policy making comes from EAC Treaty, strategic plans and decisions of Council of Ministers 3. All EAC policies are generated out of extensive consultation and mutual agreement of all partner states 4. Policy statements generated are made in harmony with provisions of the EAC treaty and other existing policy documents 5. EAC policies are determined by the Council of Ministers, ratified by all partner states and implemented at regional and national level

Implementation of SPS Policies	<ol style="list-style-type: none"> 1. Mechanisms envisaged for the implementation of those policies, 2. Contracts defining roles of different actors <p>Relationship between policy makers and implementers</p> <ol style="list-style-type: none"> 3. Interest and incentives in policy implementation 	<ol style="list-style-type: none"> 1. Mechanism envisaged for implementation of SPS policies are outlined in SPS policy documents 2. There are no specific contracts or legal obligations upon partner states to implement SPS decisions 3. there are no specific incentives for implementation of the SPS policy decisions
Feedback on SPS Policy implementation	<ol style="list-style-type: none"> 1. Ways in which feedback about policy implementation and the impacts of policy reach policy makers 2. Feedback influence on future policy processes 	<ol style="list-style-type: none"> 1. EAC partner states have a clear communication channel between partner states and the EAC Secretariat 2. Feedback on implementation has not influenced further decisions to achieve results therefore many SPS NTBs remain
SPS Policy Coherence	<ol style="list-style-type: none"> 1. Linkages between SPS policies 2. Harmonisation of SPS policies across areas, sectors and levels 	<ol style="list-style-type: none"> 1. EAC SPS policies reflect cross reference and in line with EAC Treaty 2. Across sectors, there is disharmony in implementation frameworks

In summary, as illustrated in *Table 5-3*, the EAC SPS Policy context is strong in identification and definition of SPS policies. The EAC SPS Policy frameworks are anchored on the EAC Treaty, but influenced by international regimes. However, implementation and feedback mechanisms are severely wanting. There is also need for a deliberate effort to harmonise and create coherence in SPS policies across different sectors. Moreover, the EAC countries trade policy review done in November 2012 under the framework of WTO Trade Policy Review (TPR) revealed the need to dismantle NTBs that hamper intra-EAC trade and the need to clarify and harmonise sectoral policies. All EAC partner states need to pursue trade liberalization policies and improve their multilateral commitments on agricultural and food trade.

5.3.2 East African Community Trading Contexts

5.3.2.1 Trading within the East African Community

5.3.2.1.1 The East African Community Customs Union

A customs union is a trade agreement by which a group of countries charges a common set of tariffs to the rest of the world while granting among themselves free trade. Tariff barriers are generally recognised to reduce the quantity of trade between countries in order to protect certain domestic producers in favour of imports. This action also translates into higher costs for consumers in both the importing and the exporting country. A customs union offers one means of achieving the balance between protecting politically favoured producers while also reducing consumer costs. A Customs Union is the third stage of economic integration after a Preferential Trade Area and a Free Trade Area. However, the EAC Treaty provides that a Customs Union shall be the first stage in the process of economic integration.

EAC Partner States agreed to establish a Customs Union that will, among others, provide for the application of the principle of asymmetry; the elimination of internal tariffs and other charges of equivalent effect; and the elimination of non-tariff barriers (NTBs). EAC Partner States have agreed to remove all the existing NTBs on the importation into their territory of goods originating from the other Partner States and thereafter to refrain from imposing any further NTBs. They also agreed to refrain from enacting legislation or applying administrative measures which directly or indirectly discriminate against the same or like products of other Partner States.

5.3.2.1.2 The East African Community Common Market

EAC Partner States have agreed to establish a Common Market that will provide for free movement of labour, goods, services, capital, and the right of establishment. The Common Market represents the second stage of the regional integration process, following the Customs Union, which became fully-fledged in January 2010. A common market is a group formed by countries within a geographical area to promote duty free trade and free movement of labour and capital among its members, but imposing a common external tariff (CET) on imports from non-member countries.

5.3.2.2 Trading Contexts with Other Regions

The five EAC partner states are members of the World Trade Organization (WTO), Codex Alimentarius and the World Organisation for Animal Health (OIE). They are also Contracting Parties to the International Plant Protection Convention (IPPC). All EAC partner states are members of two or more regional economic communities (RECs) in Africa. In addition, they are eligible for non-reciprocal preferential treatment under the Generalized System of Preferences (GSP) for Australia, Canada and Japan; and the U.S. African Growth and Opportunity Act (AGOA). As least developed countries (LDCs), Burundi, Rwanda, Tanzania, and Uganda are eligible for the Everything-But-Arms (EBA) initiative of the EU. The EAC has been a beneficiary of market access either at Most-Favoured Nation (MFN) level or in the context of preferential trade agreements.

Despite subscribing to various trading contexts with other RECs in Africa and engaging in preferential trade agreements out of Africa, intra-Africa trade involving EAC remains low and the use of trade preferences extended by trading partners of EAC partner states countries is limited. In the main, this reflects severe supply-side constraints in EAC

countries, but some features of the preference schemes limit their impact, particularly stringent technical regulations and SPS measures of trading partners. Furthermore, even without these constraints, liberalization of preferential markets (including through the increasing number of regional trade agreements or multilaterally) continues to erode existing preferences due to existing SPS related NTBs.

5.3.3 EAC SPS Institutional Environment

The integration process of the EAC is governed by the Treaty for the Establishment of the East African Community (EAC Treaty), which also provides the overall SPS policy and legal framework of the Community. The EAC Treaty is a regional trade agreement (RTA) between Burundi, Kenya, Rwanda, Tanzania and Uganda. A trade agreement is any contractual arrangement between countries concerning their trade relationships, concluded in order to reduce or eliminate tariffs, quotas and other trade restrictions on items traded between the signatories.

5.3.3.1 Treaty for the Establishment of the East African Community

The EAC integration process is founded upon the new Treaty for the Establishment of the East African Community (EAC, 1999). The integration process being part and parcel of international cooperation must be based on international agreements such as treaties. According to *The Vienna Convention on the Law of International Treaties*, 1969, a treaty may be bilateral or multilateral, and is an agreement under international law entered into by actors (such as sovereign states) and which creates legal obligations to such contracting parties. The EAC Treaty meets the two basic requirements for a treaty which are: the legal binding nature arising out of the parties' treaty-making capacity; and the

creation of rights and obligations in international law distinct from those arising under the national law of any of the parties (Dixon, 2000).

The EAC Treaty outlines the objectives of the EAC (Article 5) and areas of cooperation among EAC partner states (Chapters 11-27). It also creates an institutional framework (Chapters 3-10). Article 5 of the EAC Treaty provides for the development of policies and programmes aimed at widening and deepening cooperation among the partner states in political, economic, social and cultural fields, research and technology, defence, security and legal and judicial affairs for their mutual benefit. This involves, among other initiatives, the strengthening of public institutions and private sector organizations involved in export promotion.

In order to promote the achievement of this objective as set out in Article 5 and in furtherance of Article 2 of the EAC Treaty, “*Partner States shall develop and adopt an East African Trade Regime and co-operate in trade liberalization and development in accordance therewith*” (Article 74). In compliance with Paragraph 1 of Article 151 of the EAC Treaty, partner states undertook to “*conclude such Protocols as may be necessary in each area of co-operation, which shall spell out the objectives and scope of, and institutional mechanisms for co-operation and integration.*” To this end several protocols have been concluded, including the protocol for establishment of EAC customs union; protocol for establishment of EAC common market; and EAC protocol for application of SPS measures.

The EAC is on an exponential path in concluding protocols as supplementary binding instruments for purposes of the cooperation among EAC partner states in accordance with Article 151 (1) of the EAC Treaty which provides that “*EAC partner states shall*

conclude such Protocols as may be necessary in each area of cooperation which shall spell out the objectives and scope of, and institutional mechanisms for cooperation and integration". In this regard the EAC partner states have concluded key protocols, including those that facilitate trade in agricultural and food products. Protocols that shape EAC SPS institutional environment include the Protocol on Establishment of the East African Community Customs Union; the Protocol on Establishment of the East African Community Common Market; and the Protocol on Application of Sanitary and Phytosanitary Measures.

Article 108 of the Treaty and Article 38 (1) and (2) of the Customs Union Protocol allow Partner States as part of their co-operation *to harmonize their sanitary and phytosanitary (SPS) measures in order to promote trade within the EAC and with other trading partners*. Under the provisions of paragraph 1 of Article 151 of the Treaty, EAC Partner States have undertaken to conclude protocols as may be necessary in each area of co-operation, to spell out the objectives and scope of, and institutional mechanisms for, co-operation and integration. Further, EAC Partner States note that harmonisation of SPS measures will improve the human, animal and plant life or health situation in all partner states and will ensure the rational development of the agricultural sector, and increase quality production to ensure food security and safety and free trade in agricultural products within the Community and other trading partners. *Table 5-4* provides an evaluation of the EAC Treaty as a regional trade agreement (RTA).

Table 5-4: Analysis of Treaty Establishing the East African Community

Parameter	Requirement of international law	Status of EAC Treaty
Reciprocity	Granting of mutual concessions in tariff	The EAC Treaty shares common tariff rates,

Parameter	Requirement of international law	Status of EAC Treaty
	<p>rates, quotas, or other commercial restrictions.</p> <p>Concessions are neither intended nor expected to be generalized to other countries with which the contracting parties have commercial treaties.</p> <p>Reciprocity agreements may be made between individual countries or groups of countries.</p> <p>The logical extension of reciprocity is the development of a full customs union that eliminates by progressive mutual concessions all tariffs and other restrictions</p>	<p>including a Common External Tariff for the 5 partners states</p> <p>These mutual concessions are exclusive to the 5 EAC partner states only, and are not generalised to other countries trading with EAC.</p> <p>The EAC Treaty is an agreement of 5 partner states.</p> <p>The EAC has established a full customs union since 2006 that eliminates by progressive mutual concessions all tariffs and other restrictions between participating countries.</p>
Most-Favoured Nation (MFN)	<p>A guarantee of trading opportunity equal to that accorded to the most favoured nation.</p> <p>Essentially a method of establishing equality of trading opportunity among states by making originally bilateral agreements multilateral.</p> <p>As a principle of public international law, it establishes the sovereign equality of states with respect to trading policy.</p> <p>As an instrument of economic policy, it provides a treaty basis for competitive international transactions.</p>	<p>The EAC Treaty in its preamble recognizes that EAC partner states have equal opportunities.</p> <p>Treaty recognises the need to abolish tariff and NTBs in order to create favourable environment for development of regional trade.</p> <p>All EAC partner states are Contracting Parties to the Marrakesh Agreement Establishing the WTO.</p> <p>The most-favoured-nation clause prevents one of the parties to the current agreement from further lowering barriers to another country.</p>
National Treatment of Non-Tariff Barriers	<p>A “national treatment of nontariff restrictions” clause to avoid any properties of tariffs to be duplicated with an appropriately designed set of nontariff restrictions.</p> <p>These can include discriminatory regulations, selective excise or sales taxes, special “health” requirements, quotas, “voluntary” restraints on importing, special licensing</p>	<p>The partner states <i>agreed to eliminate tariff, non-tariff and technical barriers to trade; harmonise and mutually recognize standards and implement a common trade policy</i>”</p> <p>The Treaty forbids discriminatory use of the following: taxes or other internal levies; laws, regulations, and decrees affecting the sale, offer for sale, purchase, transport, distribution, or use of products.</p>

Parameter	Requirement of international law	Status of EAC Treaty
	<p>requirements, etc., not to mention outright prohibitions.</p> <p>Instead of trying to list and disallow all of the possible types of nontariff restrictions, signatories to an agreement demand treatment similar to that given to domestically produced goods of the same type.</p>	<p>The “national treatment” clause in the Treaty was designed to ensure special health requirements are carried in the Protocols touching on standards, technical regulations and application of SPS measures would not introduce discrimination of a nontariff nature.</p>

5.3.4 EAC SPS Legal Environment

Without a legal framework no organisation can exist. A legal framework is a broad system of rules that governs and regulates decision making, agreements and laws. The overall EAC legal framework is provided for by the EAC Treaty, which also defines legal frameworks for agriculture, health and trade with/in the EAC. The SPS legal framework, including the different laws, rules and regulations that are in place, as well as the processes by which these are established and enforced, plays a key role in establishing how events and processes within the EAC are played out, particularly on matters of SPS standards and trade.

5.3.4.1 Availability of SPS Laws

The EAC SPS legal environment comprises of laws, decrees, regulations, requirements, and procedures that EAC governments apply to protect human, animal, or plant life or health from risks arising from the entry or spread of plant- or animal-borne pests or diseases, or from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs. Figure 5-2 below provides a mapping of the EAC SPS institutional environment, including the legal contexts.

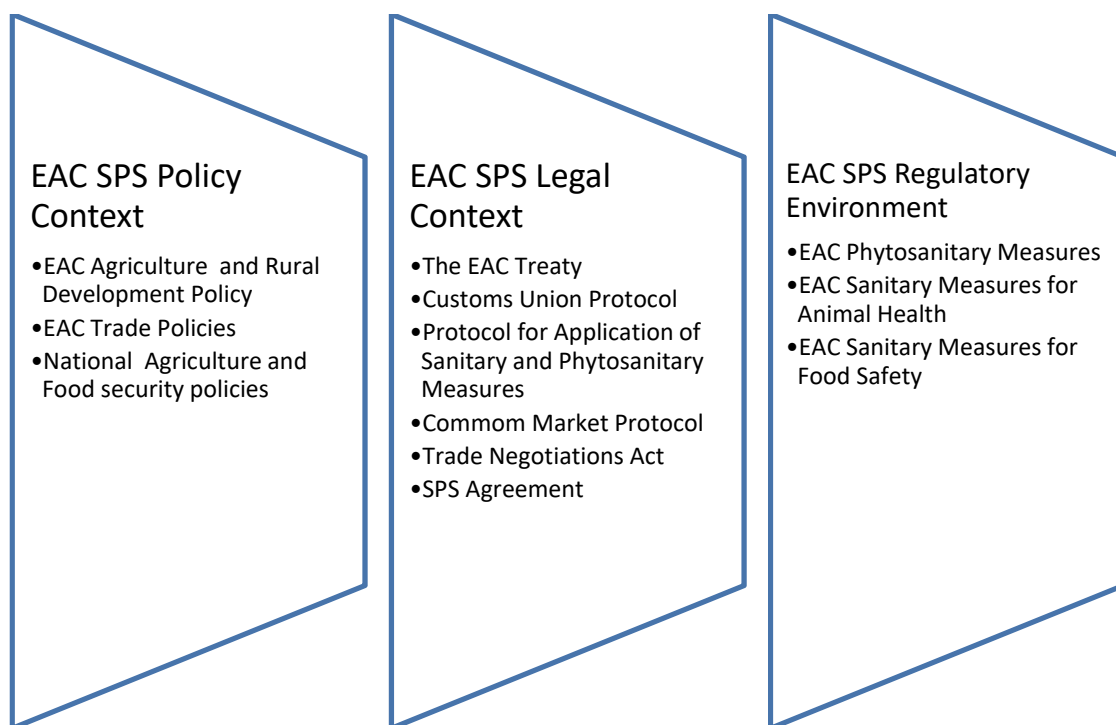


Figure 5-2: Mapping of EAC Sanitary and Phytosanitary Institutional Environment

Protocol on Establishment of the East African Community Customs Union

Under the provisions of Articles 2 and 5 of the Treaty, “*the Partner States undertake to, inter alia, establish among themselves a customs union, as a transitional stage to, and an integral part of the Community*”. The Protocol Establishing the East African Community Customs Union (EAC Customs Union Protocol) was concluded in 2004 paving the way to establishment of the EAC Customs Union in 2005. The Customs Union focuses mainly on merchandise trade, and has two main pillars: establishment of a Free Trade Area among the member countries, and a Single Customs Territory. During the transitional period of five years from 1st January 2005 to 31st December 2009, the phase involved putting in place mechanisms to operationalise the two pillars. The end of the transitional period marked the entry into force of a fully-fledged Customs Union.

Successful and effective market access in the EAC inevitably depends on the reduction or elimination of barriers. However, for export-oriented firms such as agro-industry and fresh horticultural products, compliance with technical norms and SPS standards severely constrains their export potential both within the EAC, and between EAC countries and their trading partners (EAC, 2006b). Increased trade in agricultural and food products in the region calls for reduction or removal of non-tariff measures (NTMs) especially, technical barriers to trade (TBT) and SPS measures. Compliance with Article 38 of the EAC Customs Union Protocol requires EAC partner states to take cognisance of cooperation in SPS measures in order to facilitate trade within the EAC and with other trading partners.

Table 5-5: SPS related NTBs affecting Intra EAC Trade (as at December 2013)

Examples of SPS related Non-Tariff Barriers to trade with/in the EAC				
No.	Description of SPS related NTB	Affected countries	NTB Source & Agency for action	Recommended Action
1	Multiple agencies involved in testing of goods	All EAC partner states	Statutory agencies in EAC partner states	Develop and implement mutual recognition instruments
2	Ugandan ban on beef & beef products from Kenya	Kenya	Uganda Department of Veterinary Services; Ministries of livestock development and Agriculture	Kenya asked to review Legal Notice No. 69 to address issues of BSE disease
3	Non recognition by Kenya for SPS Certificates issued by Uganda for tea destined for Mombasa auction	Uganda	State Department of Agriculture Kenya	Mutual recognition of SPS certificates
4	Cut-flowers from Tanzania for re-exports to Europe blocked by Kenya	Tanzania	Kenya Plant Health Inspectorate service (KEPHIS)	Adopt EAC harmonized SPS measures

Adapted from (Edewa, 2010; EAC, 2012a)

Protocol on Establishment of the East African Community Common Market

The Protocol on the Establishment of the EAC Common Market entered into force on 1 July 2010, following ratification by all the five Partner States. It provides for “Four Freedoms”, namely the free movement of goods; labour; services; and capital, which will significantly boost trade and investments and make the region more productive and prosperous. The Common Market Protocol is a significant step towards the achievement of the next milestones in the integration process –the EAC Monetary Union and Political Federation.

The mandate for the Partner States to negotiate the EAC Common Market is derived from Article 5(2) of the Treaty and more specifically from; Article 76(1) which states that “*There shall be established a Common Market among the Partner States*”; and, Article 76 (4) which states that “*For purposes of this Article, the Partner States shall conclude a Protocol on a Common Market.*” The signing of the Protocol on Establishment of the East African Community Common Market (EAC Common Market Protocol) in 2009 ushered the entry into force of the EAC Common Market effective from 1st July 2010. The EAC Common Market Protocol seeks to facilitate four Freedoms and two Rights outlined in the protocol as follows: Free Movement of Goods; Free Movement of Labour; Free movement of Services; Free Movement of Capital across the five EAC Partner States; Right of establishment; and, Right of Residence (EAC, 2009). Thus, the entry into force of the EAC Common Market means entry of the critical phase where EAC partner states, which, pursuant to the EAC Treaty are the principal implementers of EAC programmes.

The scope of cooperation under the Common Market is wide, including free trade and movement of goods. The free movement of goods as provided for in Article 6 of the Common Market Protocol is governed by the Customs Law of the EAC. EAC partner states “*agreed to eliminate tariff, non-tariff and technical barriers to trade; harmonise and mutually recognize standards and implement a common trade policy*”. The EAC expects to benefit from the common market through common and coordinated policies that increase efficiency especially in partner states that are slow in developing good policies. In addition the common SPS regulatory regime is expected to ensure that best practices within regional framework are in place and adhered to. By practicing common SPS policies and regulations, EAC countries can develop harmonised systems for conformity assessment based on best practices, standards and legal systems.

Protocol on Application of Sanitary and Phytosanitary Measures

Perhaps to cover for the deficiency of the EAC Treaty on SPS matters, the Common Market Protocol provides for identification and inclusion of other protocols that may be concluded in areas of cooperation in SPS matters as well as technical barriers to trade, and any other instruments relevant to the free movement of goods. In this regard the EAC has concluded the Protocol on Application of Sanitary and Phytosanitary Measures (SPS Protocol) among others. Movement of agricultural, food and industrial products will, therefore, remain subject to compliance with rules provided for in the SPS protocol, in order to protect EAC countries from establishment and spread of human, animal or plant health risks arising from imports of agro-food goods. Article 108 of the EAC Treaty allows partner states as part of their co-operation to harmonise their SPS measures in order to promote trade within the EAC.

The principal objective of the SPS Protocol is to promote trade in food and agricultural commodities within the EAC and between the EAC and other trading partners by ensuring that any negative effects of EAC SPS measures adopted and enforced by EAC Partner States are kept to a minimum (EAC, 2012b). Other objectives include, the promotion within the EAC; the implementation of the principles on harmonisation, equivalence, regionalisation, transparency and risk assessment as outlined in the WTO SPS Agreement; the strengthening of cooperation and coordination of SPS measures and activities at national and regional level; and the enhancement of SPS status through adoption of science-based approaches in the EAC. The Partner States have agreed to cooperate in the harmonisation and adoption of plant health, animal health and food safety measures.

The EAC SPS Protocol has elaborated areas of cooperation in SPS matters. In particular, it requires EAC partner states to cooperate in the harmonisation and adoption of plant health, animal health and food safety measures. The Protocol, therefore, includes annexes of harmonized SPS measures in animal health, plant health and food safety and allows for the updating of the different annexes from time to time as may be determined by competent authorities (CAs).

The EAC SPS Protocol also provides for harmonization of SPS policies, laws and programmes among partner states for purposes of implementing the objectives of the protocol and allows the Council of Ministers to issue directives including establishing and empowering relevant institutional arrangements for its implementation. The EAC SPS protocol provides an implementation framework for the SPS Agreement in order to

facilitate safe trade in agricultural and food products within EAC partner states (EAC, 2012b) in line with requirements of the SPS Agreement.

The East African Community Trade Negotiations Act, 2008

The East African Joint Trade Negotiations Act was assented to by the Summit in 2008. The Act supports EAC policy rationalisation and harmonisation of procedures for conformity assessment in support of trade. It also allows the EAC to negotiate as a bloc in multilateral trade arena, such as for example, the WTO. However, the Act is yet to be implemented and no progress has been made and the mechanisms that were put in place have not yet been initiated by partner states. In the SPS arena the EAC is neither an observer in the WTO SPS Committee nor in any of the three SPS international setting organisations (ISSOs) - Codex, OIE and IPPC, unlike other RECs in Africa.

Economic Partnership Agreements (EPAs)

Since 2000 the Cotonou Agreement has been the principal agreement between the EU and the Sub-Saharan countries. The Cotonou agreement was planned to be in force for 20 years, but its trade regime had to be changed completely, because it was not WTO-compatible. The GATT and WTO trade regimes do not allow any special treatment for certain developing countries (WTO, 2010). The Cotonou Agreement has been replaced by the Economic Partnership Agreement (EPA). The negotiation of Economic Partnership Agreements (EPAs) between the European Union (EU) and the African, Caribbean and Pacific (ACP) states to replace the trade provisions of the Cotonou Partnership Agreement (CPA) has been controversial and given rise to many (sometimes wild) claims about the likely development effects (WTO, 2009c).

African Growth and Opportunity Act (AGOA)

The African Growth and Opportunity Act is a partnership between the United States of America (USA) and Sub Saharan Africa (SSA) aimed at creating an environment that encourages Africans to secure their own prosperity. The Act originally covered an eight-year period from October 2000 to September 2008, but the amendments signed into law by U.S. President George Bush in July 2004 further extended AGOA to 2015. The preferential access for imports from the African region concerned has expanded substantially, and access to US technical expertise and credits has improved. In addition to these steps, a US-Sub-Saharan Africa Trade and Economic Forum will be established in order to improve trade and investment. The US has also established three so-called "Global Competitiveness Hubs" in Sub-Saharan Africa. One of these, for Central and Eastern Africa, is located in Nairobi. The impact of AGOA has hitherto been a dramatic increase in exports from the US to Africa.

5.3.4.2 Formal Mechanisms for Generating SPS Laws:

Article 49 of the EAC Treaty gives the East African Legislative Assembly (EALA) the paramount role of the legislative organ of the EAC. The EALA enacts four types of laws. First, the working rules, or rules that determine the roles of partner states and agencies within their territory, the way in which they work together and the quality of their relationship. This encompasses laws that are supportive of the partner states policy rationalization and harmonisation such as *The East African Community Trade Negotiations Act, 2008*. Secondly, the EALA enacts collective choice rules that establish what processes or conditions are required in order to set, or modify the working rules and mechanisms that permit different institutions and organs of the community to generate

feedback so that changes can be considered. This includes the institutional development laws, such as *The East African Community Parliamentary Institute Act, 2012*. Thirdly, EALA enacts the constitutional rules that determine the procedures that can be used to set or modify the collective choice rules. They include fundamental laws, such as *The Acts of the Community Act, 2004*. Last but not least are annual *Appropriation Acts* whose purpose is to make appropriation out of the EAC's budgets as approved by the EALA.

Apart from the EAC Trade Negotiations Act 2008 and relevant provisions of the EAC Treaty and SPS Protocol, there has been so far no Act enacted that relates directly to SPS matters within the EAC. This could be attributed to either a failure by the Council of Ministers to initiate SPS related Bills, or a lack of understanding on the part of EALA on the importance of SPS laws in facilitating safe intra-EAC trade in agricultural and food products, although the EALA blames the failure on the “*Council of Minister's slow and protracted initiation of Bills*” (EAC, 2013).

The EAC acknowledges the important contribution of international standards, guidelines and recommendations as well as harmonization of SPS measures in the Community. Consequently, the decision to develop the EAC SPS Protocol was made by the 1st Meeting of the Sectoral Council on Agriculture and Food Security which was held on 8th September, 2006 in Arusha, Tanzania. Since then, a series of regional meetings of SPS Experts drawn from all EAC member countries were held, and the EAC SPS Protocol is now available (EAC, 2012c).

5.3.4.3 Mechanisms for Implementation of EAC SPS Laws

In practice, there is no formal structure for the application of SPS measures at the regional level. While budgetary allocation is necessary for effective implementation of

the SPS Protocol in EAC partner states, the EAC Protocol has not provided the need for prioritisation of SPS matters and modalities for funding. Nevertheless, Article 10 of the protocol allows partner states to seek technical assistance to build capacities for SPS compliance. On transparency, the SPS protocol requires partner states to constantly share information on SPS matters and calls for consultation and cooperation in implementation of the SPS protocol. However, information sharing is seldom done and this has resulted in longstanding SPS related NTBs in intra-EAC trade.

5.3.4.4 Feedback Mechanisms on EAC SPS Laws

The EAC has a clear feedback mechanism about feedback on implementation of SPS laws, which also outline mechanisms for dispute resolution and feedback on necessary amendments. First, the EALA is constituted by representation from EAC Partner States. This provides the EALA members an opportunity to present SPS related matters in the regional parliament for debate. EALA addresses matters on SPS legislation through sector committee focusing on agriculture and livestock. Secondly, before implementation all regional legislation must be ratified by Parliaments in individual EAC Partner States. The SPS Protocol was concluded in 2012 and ratified by all Partner States in 2013. Also, in each partner there is a Ministry responsible for coordination of EAC affairs which reports back to the EAC Secretariat on progress made in implementation.

Although there is clarity in the process of enacting Laws within the EAC, there is need for close consultation between the Council of Ministers (policy organ), the Legislative Assembly (legislative organ), Partner States and the business community. Close consultation among key actors and agencies can help in reviewing collective choice rules that establish what processes or conditions are required in order to set, or modify, SPS

working rules, including mechanisms that permit different SPS actors with different functions to generate feedback on the SPS legal context so that changes can be considered.

5.3.4.5 Strengths and Weaknesses of EAC SPS Legal System

The EAC is not a member organisation or observer in the WTO SPS Committee or SPS ISSOs. However, all EAC partner states are members of the WTO. In this regard the EAC can facilitate compliance with SPS requirements through Regional Trade Agreements (RTAs) and regional SPS frameworks. The EAC SPS policy framework as outlined in the previous section can be operationalised through enactment of an SPS Act, but this is still in the future. The current SPS protocol is unlikely to achieve better results without the SPS Act. Without the SPS Act, it is also unlikely that regional trade in the EAC will improve owing to existence of multiple SPS related NTBs in the region. Article 13 of the EAC SPS Protocol allows the Council of Ministers from time to time to “*make regulations, issue directives and make decisions as may be necessary for the effective implementation of this Protocol*”. This provision complies with the EAC requirement that no organ or institution is established by a protocol, and that the Council of Ministers as a policy organ will only provide policy guidance and allow establishment of organs and institutions through introduction of Bills in the EAC Legislative Assembly for enactment of EAC Laws.

As a general observation, there have been long standing SPS related challenges in the region that require enactment of regional SPS legislation. An outlay of regional legislation is provided for in Article 8 of the EAC Treaty, which gives precedence of EAC (regional) laws over similar national laws on matters pertaining to implementation

of the EAC Treaty. This implies that once enacted, published and gazetted, EAC regional legislation becomes binding on EAC partner states and supersedes national legislation. However, EAC partner states tend to confer precedence of national laws over regional legislation. Therefore, despite the existence of a policy and legal framework at regional level, there remains much scope to enhance the performance of the EAC SPS legal context as illustrated in *Figure 5-3* below.

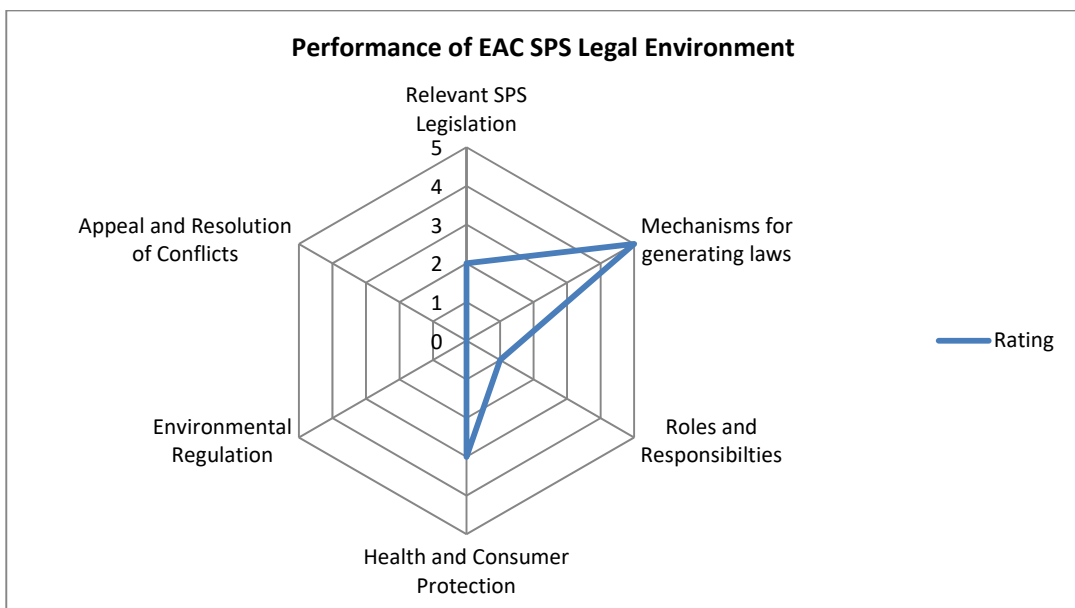


Figure 5-3: Performance of EAC SPS Legal Environment

The current legislative process aims at achieving more than free trade and harmonization in SPS infrastructure and services. It seeks to broaden and deepen integration with gradual establishment of a Customs Union and Common Market followed by a Monetary Union and culminating into a Political Federation. The legislative process also emphasises strong participation by the private sector and civil society in EAC programmes.

5.3.5 EAC SPS Regulatory Environment

5.3.5.1 Availability of SPS Measures

EAC partner states completed development of a harmonized SPS regulatory framework in 2012. It is meant to ensure safe trade in agricultural and food products. The EAC SPS measures are contained in four different volumes: Volumes I, II, III, and IV. The four volumes are annexes and an integral part of the EAC SPS Protocol. Volume I contains harmonized phytosanitary measures (for plants and plant products) (EAC, 2010a); Volume II contains harmonized sanitary measures (for mammals, birds and bees) (EAC, 2010b); and Volume III contains harmonized sanitary measures for fish and fisheries products (EAC, 2010c). Food safety measures, which were concluded in 2013, are contained in Volume IV.

With the exception of food safety measures, the other volumes of SPS measures were revised in 2010. EAC harmonized SPS measures are based on technical standards developed by the Codex, OIE, and organizations operating within the framework of the IPPC. In this regard the EAC SPS regulatory framework provides definitive measures to be taken by partner states to promote safe agro-food trade.

5.3.5.2 Non-Discrimination

EAC partner states, being members of WTO have agreed to comply with their basic rights and obligations under the WTO SPS Agreement. In applying EAC SPS measures, The SPS Protocol requires no discrimination between EAC partner states or between EAC partner states and other WTO members, accept where there is imminent SPS risk. To show commitment to abiding with these provisions EAC partner states signed the EAC SPS Protocol in November 2012. However, implementation of the SPS Protocol lies

upon the EAC partner states. A review of SPS related trade challenges and WTO SPS information system has revealed no discriminatory activities by EAC partner states.

5.3.5.3 Harmonisation

In addition to applying the provision on harmonization in the WTO SPS Agreement, EAC partner states are required to adopt and implement the EAC Harmonized SPS Measures including other relevant harmonized documents to be developed from time to time. While harmonization refers to countries basing their SPS requirements on internationally developed standards. It does not refer to the countries in a region adopting common standards. However, EAC partner states have developed common SPS standards and measures. While regional SPS standards may facilitate trade, each country would have to be able to justify the requirement for the standard based on risk to its own territory. However, considering that the EAC integration has created a common market and single customs territory, common SPS measures are justified.

Also, while WTO members are encouraged to participate actively in the work and programmes of the ISSOs, the participation of EAC partner states is irregular and weak. As such EAC countries remain on the receiving end of standards advocated for and pushed by members (mostly industrialised countries) who participate effectively. This is attributed to low priority of SPS matters in national agenda and budgeting. Moreover, the EAC as a regional economic community (REC) is neither an observer of any of the three ISSOs nor does it participate in WTO SPS Committee meetings. WTO members are invited to bring to the attention of the WTO SPS Committee either international standards whose use or non-use is creating trade problems or where there is a lack of an international standard whose existence could facilitate trade. This has been seldom the

case with EAC partner states, and so the EAC has rarely identified areas where the lack of an international standard creates trade problems.

5.3.5.4 Risk Assessment

Under the EAC SPS Protocol, the partner states agree to comply with the risk assessment provisions of the WTO SPS Agreement. Although the SPS Agreement does not require that each country do its own risk assessment, EAC partner states are weak in risk assessment capabilities, and all EAC SPS measures are based on international standards rather than on an appropriate risk assessment. EAC partner states are also required to cooperate in developing national and regional human and institutional capacities in risk analysis. If a risk assessment for a particular hazard has already been done by another country or organization, EAC partner states are encouraged to use it – perhaps with modifications to fit the specific circumstances. The EAC secretariat is required to facilitate the mobilization of resources for the gathering of relevant scientific and other data to assist EAC partner states in the risk analysis process and in advancing their individual or the region’s position in relevant international forums.

5.3.5.5 Equivalence

Under the EAC SPS Protocol, partner states agree to comply with the equivalence provisions of the WTO SPS Agreement, but each partner state is required to develop rules and procedures in accordance with international standards. While this does not infringe on the rights of individual EAC partner states to apply their own SPS measures, it contradicts the development of common SPS measures which are very definitive and do not provide for such flexibility for EAC partner states. However, this provision in the

EAC protocol allows EAC partner states to seek equivalence with trading partners outside the EAC. Moreover, the EAC has not utilised the SPS Committee guidelines that were developed at the request of developing countries, to help countries get acceptance of the equivalence of alternative SPS measures that they may propose (Work of the Committee (G/SPS/19/Rev.2)).

While the CODEX in particular has done a lot of work on guidelines to recognize the equivalence of food safety systems, EAC partner states still subject food imports from the region to stringent tests (See **Error! Reference source not found.**). Although OIE standards usually identify several ways in which particular meat products can be made safe for trade, Kenya and Uganda have long standing trade restrictions due to non-recognition of “equivalent” treatments. In addition, while IPPC has developed product-specific standards, Ugandan tea destined for auctions in Kenya has for a long time been subjected to further restrictions at the port of entry in Kenya because different possible “equivalent” treatments have not been identified.

5.3.5.6 Adaptation to Regional Conditions

Within the EAC, regionalisation is provided for in the SPS Protocol and partner states are required to implement provision of the SPS Agreement on *Adaptation to Regional Conditions, including Pest- or Disease-Free Areas and Areas of Low Pest or Disease Prevalence*. In addition, EAC partner states have committed themselves to cooperate in the establishment and maintenance of pest or disease free areas and areas of low pest or disease prevalence. Since “regionalisation” does not mean the adoption of similar standards on a region-wide basis, each EAC partner state has flexibility to adopt,

maintain or apply a different risk assessment procedure for a pest free or disease free area other than for an area of low pest or disease prevalence. They also have flexibility to make a different determination for the disposition of a commodity produced in a pest free or disease free area other than for a commodity produced in an area of low pest or disease prevalence, taking into account any prevailing conditions, including those relating to transportation and handling. However, the capacity to establish pest or disease free areas is low and regionalisation has not been given priority in most EAC partner states.

5.3.5.7 Transparency in Application of SPS Measures

In general interested trading partners are to be allowed to make comments in writing and such comments are to be discussed and the results of the discussions taken into account. All EAC partner states have established SPS NEPs and designated a NNA, although they need strengthening of capacities to enhance performance. EAC partner states have not notified the WTO SPS committee of the new EAC SPS measures or even the equivalence measures that are being implemented in the region. Besides, the communication channels between EAC partner states have not been utilised, neither are any notifications raised to the WTO SPS committee communicated to other EAC partner states. It is necessary that EAC partner states heed recommendation to notify all new or changed SPS measures even when these follow international standards. This will greatly improve transparency and allow better monitoring of the use of relevant international standards by the WTO.

5.3.5.8 Technical Assistance/ Special Treatment

EAC partner states have agreed to cooperate in the area of SPS capacity building by implementing the provisions of the SPS Agreement. Recognising that SPS capacities to

implement harmonised SPS measures vary across partner states the EAC SPS Protocol requires partner states to take appropriate steps to ensure that special needs of partner states are addressed with a view to enhance trade and encourages partner states to participate actively in activities and programmes of WTO SPS Committee and the three sister ISSOs. So far, STDF has conducted studies and implemented SPS capacity building projects within the EAC. The region has also benefited from multilateral and bilateral development assistance to establish or strengthen capacities of EAC partner states to implement the SPS Agreement, including controls, inspections and approval procedures in partner states.

5.3.6 Strengths and Weaknesses of EAC SPS Institutions

5.3.6.1 Strengths of EAC SPS Institutional Environment

Table 5-6 and *Table 5-7* below provide a summary of strengths, weaknesses, opportunities and threats of the EAC SPS institutional environment. There are also factors in the environment that have the potential to affect the performance of the EAC SPS institutions. These range from international institutional environment, and regional political, socio-economic, technological and environmental factors. As SPS matters call for collaboration and coordinated approaches at all levels, these factors must be considered in coining SPS related strategies in the EAC region in order to facilitate safe trade within the EAC for agro-food products.

Table 5-6: Strengths and Weaknesses of EAC SPS Institutions

	Strengths	Weaknesses
Availability of SPS Policies and Laws	<p>The EAC Treaty conforms to requirements of a regional Trade Agreement</p> <p>SPS Policy and legal frameworks exist and regional level</p>	<p>Lack of a regional SPS Act and Food Safety Policy has tended to create disharmony between regional SPS policies and their implementation in partner states.</p> <p>Inadequate SPS policies in Partner States</p> <p>Fragmented and outmoded SPS legislation in partner States</p>
Formal Mechanisms for generating policies and laws	<p>Clear mechanisms for generating SPS policies- through the EAC Council of Ministers</p> <p>Clear mechanisms for generating SPS legislation- through East African Legislative Assembly (EALA)</p> <p>Regional SPS policies and legislation is based on international standards and frameworks</p>	<p>Slow and cumbersome process for development of SPS policies</p> <p>Limited awareness on SPS matters leading to low priority in enactment of SPS laws</p> <p>Generation of SPS Policies and laws is not risk-based</p>
Implementation of SPS policies and laws	<p>Implementation of policies and laws is at partner states level, therefore flexible</p> <p>Regional SPS policies and laws supersede national legislation</p> <p>Availability of SPS competent authorities at Partner State level</p> <p>In applying SPS measures, EAC partner states do not discriminate between EAC partner states or between EAC partner states and other WTO members.</p> <p>EAC Partner States do not discriminate against goods from other WTO members within or out of the EAC, except where SPS risk is imminent</p> <p>The EAC has developed four volumes of harmonised SPS measures, including for plant health, animal health and food safety</p>	<p>Weak administration of SPS matters at regional level</p> <p>Weak coordination of SPS agencies at national level</p> <p>Priority accorded to SPS matters at national level is low, therefore low budgetary allocation for SPS programmes</p> <p>Varied capacities and competencies of national SPS institutions slows down implementation of regional SPS decisions</p> <p>EAC Partner States have not reviewed their regulatory frameworks in tandem with EAC harmonised system</p> <p>The EAC as a regional economic bloc does not have representation or observer status at the WTO and SPS International Standard Setting Organisations (Codex, IPPC and OIE)</p>

	Strengths	Weaknesses
	<p>Each EAC partner State has established a National Notification Authority and National Enquiry Points on SPS matters</p>	<p>The EAC partner states do not notify trading partners in advance on SPS regulations as required in SPS agreement, Codex, IPPC and OIE.</p> <p>There are capacity gaps in all EAC Partner States on implementation of Transparency Provisions of the SPS Agreement</p> <p>EAC partner states have varying political systems, development strategies and trade policies. The development blueprints are not harmonized and there is a lack of coherence between trade and sectoral policies.</p>
Feedback mechanisms on SPS implementation	<p>The EAC recognises varied competencies of national SPS institutions and takes their recommendations into account in SPS policy</p> <p>EAC has established a schedule of regional meetings that discuss various aspects in SPS implementation</p> <p>In each Partner State, there is a Ministry responsible for EAC affairs, including coordination of regional programmes at national level</p>	<p>Weak mechanisms for SPS information sharing at national and regional levels</p> <p>There are long-standing SPS-related NTBs between EAC Partner States due to varied procedures for implementation of SPS matters</p>

Table 5-7: Opportunities and Threats for EAC SPS Institutions

	Opportunities	Challenges
SPS Policy Frameworks	<p>The EAC has opportunity to become an observer at the WTO SPS Committee as well as in SPS Standard Setting organisations: CODEX, OIE and IPPC.</p>	<p>Multiple SPS frameworks in Africa may cause problems for trade if not harmonised widely.</p>

	Opportunities	Challenges
SPS Legislation	EAC partner states can benchmark their SPS legislation with international best practice in accordance with WTO, Codex, IPPC and OIE	Membership in diverse regional economic communities makes it difficult to develop harmonised SPS policies and national legislation
Implementation of EAC SPS Measures	<p>Existence of SPS Capacity Building Programmes organised by international organisations</p> <p>There are many partnerships in technical SPS subject areas that the EAC can engage in, particularly in information and technology exchange platforms and risk assessment, control of tranboundary animal diseases</p> <p>Increased agro-food trade in Africa offers opportunity for cooperation with other RECs to develop strong SPS systems in Africa</p>	<p>Increasing negative effects of climate change leading to emergence of new diseases and escalation of pests in the region.</p> <p>Increased terrorism activities in the EAC region, reducing investments and trade</p> <p>Continuous existence of SPS related NTBs that are being addressed only too slowly.</p> <p>Cost of equipment and other compliance tools for effective implementation of SPS agreement is prohibitive</p>

5.4 Conclusion

So how has the EAC performed in the achievement of its objectives, in particular with regard to SPS institutions? While the EAC is on an accelerated path of broadening and deepening cooperation, it is my considered view that this progress will soon be constrained by the overall performance of EAC SPS institutions. Much ground has been covered in development of SPS policy and legal frameworks, but there is scope to improve EAC SPS systems by the strengthening of the policy and institutional frameworks.

With increased political interest towards regional trade SPS threats across the borders are imminent. With many pests likely to travel across borders, regional SPS policies and strategies are necessary to address SPS threats and minimize SPS related non-tariff barriers (NTBs) to trade. The EAC faces multiple SPS threats and member states have recorded many SPS related NTBs imposed on agro-food products trade in the region. However, despite the SPS threats in the region, the EAC does not have sufficient SPS policies and strategies to address them. The current SPS policy framework of the EAC is set out in the EAC Agriculture and Rural Development Policy and Strategy, but is not elaborate enough to allow for effective regional SPS strategies to be developed. As a consequence, SPS related NTBs within the EAC are likely to persist and have negative impacts on intra-EAC agro-food trade.

Regional trade agreements can boost regional trade, but have to make provision for SPS legal frameworks that will ensure SPS threats in regional trade are identified and addressed. The integration process of the EAC is governed by the Treaty for the Establishment of the East African Community (EAC Treaty), which also provides the overall policy and legal framework of the Community. Article 108 specifically provides for cooperation in the control of plant and animal diseases, but the EAC Treaty does not mention food safety. Owing to a lack of a food safety regional legal framework, EAC partner states have not had a regional push to develop effective regional approaches or establish national laws to address regional food safety challenges.

The trend towards establishing wider free trade areas promotes intra-regional trade, but poses greater challenges in application of common SPS measures in a wider geographical region. This is because wider geographical areas will have diverse SPS risks, calling for

umbrella-like SPS frameworks that are flexible enough to allow multiple countries in the trading arrangements come up with their own SPS measures. As a REC, the EAC is currently involved in the establishment of a Tripartite Free Trade Area (TFTA) jointly with COMESA and SADC. While this opens a wider FTA with many participating countries, there are challenges in developing a harmonized SPS framework for the wider TFTA.

A strong regional SPS legal framework influences national SPS legal systems, but it must be broad enough to accommodate country level differences in the definition and implementation of national SPS regulations. The EAC SPS legal environment comprises of laws, decrees, regulations, requirements, and procedures that EAC governments apply to protect human, animal, or plant life or health from risks arising from the entry or spread of plant- or animal-borne pests or diseases, or from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs. The EAC SPS legal context is specifically defined in the EAC Customs Union Protocol; EAC Common Market Protocol; EAC SPS Protocol and the Trade Negotiations Act. There are also specific legal documents governing trade between the EAC and other trading blocs in Africa and beyond.

In order to assist member countries establish SPS measures that address identified SPS risks, regional SPS legal frameworks should comprise relevant regional SPS laws that make provisions for mechanisms of addressing SPS threats. Such laws should be relevant and developed in accordance with international best practice, and should not necessarily duplicate the SPS agreement. Apart from the EAC Trade Negotiations Act 2008 and relevant provisions of the EAC Treaty and SPS Protocol, there has been so far no Act

enacted that relates directly to SPS matters within the EAC. This could be attributed to either a failure by the Council of Ministers to initiate SPS related Bills, or a lack of understanding on the part of EALA on the importance of SPS laws in facilitating safe intra-EAC trade in agricultural and food products, although the EALA blames the failure on the “*Council of Minister’s slow and protracted initiation of Bills*”.

Regional SPS Frameworks have to be supported by participation in activities and work for international SPS standard setting bodies to ensure the SPS frameworks are up to date with changes and decisions at international level. Though observer status have been granted to the EAC as a regional economic community (REC), the EAC Secretariat has not been active in participation in the work of the SPS Committee, and technical committees of Codex, OIE and IPPC over the last ten years up to 2015.

Developing regional frameworks should develop regional SPS measures to help member countries apply such measures in a wider geographical area, thereby reducing unnecessary SPS related NTBs where similar SPS conditions exist. Countries of a region which have limited capacity to conduct scientific risk assessment or participate in international harmonization of SPS measures can adopt regional SPS measures to facilitate safe trade. EAC partner states completed development of a harmonized SPS regulatory framework in 2012 and is meant to ensure safe trade in agricultural and food products.

Regional SPS frameworks augment the implementation of the SPS agreement and have potential to exclude non-RTA member countries from benefits of such a framework. Regional SPS frameworks therefore have to be notified to the WTO under the applicable rules of RTAs and the SPS Agreement. The EAC has not notified trading partners

through the WTO transparency mechanism about the SPS frameworks in place. There is also disharmony between notifications systems of SPS ISSOs, the WTO Transparency Mechanism and regional information sharing mechanism under the EAC. Furthermore, while the SPS protocol requires partner states to constantly share information on SPS matters and calls for consultation and cooperation in implementation of the SPS protocol, information sharing is seldom done and this has resulted in longstanding SPS related NTBs in intra-EAC trade.

Considering the technical nature of SPS issues, regional SPS legal frameworks should support implementation of the SPS agreement by partner states through practical mechanisms. They should not duplicate the SPS agreement. Practically, there are no formal mechanisms that define the application of SPS measures within the EAC. While budgetary allocation is necessary for effective implementation of the SPS Protocol in EAC partner states. The EAC Protocol has not provided the need for prioritisation of SPS matters and modalities for funding. Nevertheless, the SPS protocol allows partner states to seek technical assistance to build capacities for SPS compliance at national level.

Overall, while the EAC is on an accelerated path of broadening and deepening cooperation, this progress may soon be constrained by the overall performance of EAC SPS frameworks. Much ground has been covered in development of SPS policy and legal frameworks, but there is still scope to improve EAC SPS systems by the strengthening of the policy and institutional frameworks. There is a weak link between the established SPS frameworks and national mechanisms for implementation. Moreover, SPS policies as well as SPS laws and regulations in EAC partner states have not been updated in line with the regional frameworks.

5.5 Recommendations

5.5.1 Harmonisation of SPS Policy Frameworks:

The importance of a harmonised national SPS policy framework is indisputable. Harmonising the agriculture, health and international trade policies at regional level has become more urgent than before. Such a policy should also harmonise food safety, animal health and plant health governance at national level in line with regional and international standards. However, the technical nature of SPS matters should allow for multi-sectoral approaches and sectoral policies addressing food safety, animal health and plant health matters could be easily realised than a broader SPS policy.

5.5.2 Enactment of Relevant SPS Legislation

There is need to ensure SPS legal frameworks in EAC countries provide the concerned agencies with a clear mandate and authority to prevent SPS related risks. This can be achieved through enacting a regional SPS Act that will require partner states to review their national SPS legal and regulatory environment which is currently characterized by fragmented legislation. Besides, some pieces of national SPS legislation are outmoded because they were set long before the SPS Agreement was in place, which necessitates review in line with the changing times.

5.5.3 Harmonisation of SPS Measures

Although harmonization of regional SPS standards has been largely achieved through the EAC and COMESA SPS frameworks, EAC countries SPS entities should participate actively at international level in the meetings and activities of WTO SPS committee, Codex, OIE and IPPC in order to ensure that national SPS regulatory standards are harmonized and conform to international SPS standards, guidelines and

recommendations. Globalization of food markets compels countries to develop SPS standards that are responsive to the needs of users as well as being accepted and recognized internationally. There is a need to update national SPS regulatory frameworks in line with harmonized EAC SPS measures and international standards of OIE, Codex and IPPC.

CHAPTER 6 VALUE CHAIN UPGRADING FOR SPS COMPLIANCE

A case Study of Kenya's Avocado Value Chain

6.1 Introduction

6.1.1 Background

Avocado, *Persea americana*, is an important tropical fruit tree which originated in Central and South America. Avocados are commercially valuable and are cultivated in tropical and Mediterranean climates throughout the world. Apart from its nutritive value, its oil is used in the preparation of cosmetics. In Kenya, its importance is increasing and could become more so as people discover new ways of consuming it. Approximately 85 per cent of Kenyan avocado is grown by smallholders. Avocado is grown in several agro-ecological zones in Kenya, with the majority being produced in central and western Kenya. In 2010 Kenya had approximately 11,000 ha under avocado production and the area under avocado production is increasing annually. In 2009 and 2010 Kenya produced 1,605,618MT, and 1,850,631MT avocado respectively. The exports during this period (2009 and 2010) constituted only 1.19 per cent and 1.09 per cent respectively compared to total production. Within the same period, exports to the EU were 19,100MT and 20,183MT respectively.

In 2007 South Africa, which has been an important market for Kenya's avocado between October and February, withdrew import permits for avocado from Kenya due to phytosanitary concerns about *Bactrocera invadens*, an invasive polyphagous fruit fly with potential to bring down the fruit industry (Edewa, et al., 2010). If no action is taken, other high value markets may also tighten their requirements for avocado imports from Kenya. For this reason it is necessary to conduct a detailed value chain analysis for the avocado

industry in Kenya in order to identify different SPS related challenges and suggest strategies to address them.

6.1.2 Purpose of the Study

This chapter assesses SPS related constraints and their management in Kenya's avocado industry. More specifically, the study was conducted with the following objectives: (1) To map out the avocado value chain in Kenya; (2) To identify SPS related constraints along the avocado value chain in Kenya; (3) To identify SPS control measures for upgrading the avocado value chain in Kenya; and (4) To assess costs associated with implementation of SPS control measures.

6.1.3 Scope of the Study

This study covers SPS compliance along the avocado value chain in Kenya. The avocado value chain was chosen because (1) it is the leading fruit exported from Kenya with high poverty alleviation potential; (2) it contributes significantly to national economic growth through provision of jobs and income; (3) there is high domestic and international demand for avocado; and (4) there is potential for expansion of avocado exports which offers opportunity to integrate smallholder producers in Kenya into global value chains.

6.2 Research Method

6.2.1 Definition of the Method

This study was conducted using a value chain analysis approach. The origins of value chain approach have been traced by some scholars back to Davis and Goldberg (1957) who coined the term "agribusiness" (Davis & Goldberg, 1957). The approach also has

origins in the “*filière*” approach which was used to study contract farming and vertical integration in French agriculture in the 1960s (Raikes, et al., 2000). The *filière* approach was less concerned with price liberalization and free markets but rather with establishing the best institutions to make the chain operate according to the objectives of the state and of development in general (Kaplinsky & Morris, 2002).

The value chain approach became popular with the works of Michael Porter who, in the 1980s, introduced the term in his book “Competitive Advantage: Creating and Sustaining Superior Performance” (Porter, 1985). Most products are a consequence of a sequence of activities (Humphrey, 2005), hence the use of the term ‘value chain’.

6.2.2 Principle of the Method

The value chain describes the full range of activities which are required to bring the product or a service from conception, through the intermediary phases of production, delivery to final consumers and final disposal after use (Kaplinsky, 2000). A VCA helps to trace the flow of a product through different stages of production, processing and marketing, which allows the analyst to understand the different aspects of input supply, and the constraints and competitive advantages that a producer has (Kleih, 2012b), having understood the full range of activities until the product reaches the end user (Kaplinsky & Morris, 2002). Since Porter’s first works on the value chain, the approach has been extended and reshaped by many scholars and practitioners. A common feature among the extended approaches to value chain analysis is that the focus has been shifted from the firm to the interconnected set of firms that together create the value added of the product (UNIDO, 2009).

6.2.3 Practical Validity of the Method

The fragmentation of activities carried out by multiple actors along the value chain calls for attention to how they are connected throughout the different stages a product passes from production to consumption, as well as management and coordination (Arndt & Kierzkowski, 2001). Therefore, it evaluates which value each particular activity adds to the organization's products or services (Porter, 1985). With the value chain concept Porter was able to emphasize that the profitability of a firm depends on how effectively it manages the various activities that create value added. The VCA is now widely used to provide insights into the policy challenges confronting both private and public actors (Kaplinsky, 2000). The VCA sheds light on the size of the firm participating in each link, how they are participating in the chain, the concept of chain 'governance', and opportunities to facilitate or upgrade those linkages (Kleih, 2012b). The value chain approach is becoming intensively used both by private sector agents as well as government and development agencies to both identify options for industrial development and implement development programmes (UNIDO, 2009). Value Chain Analysis (VCA) is a widely used tool which allows the researcher or development practitioner to analyse the full range of value adding activities in bringing a product or service through the different phases of product design, input supply, production, marketing and ultimately response to consumer demand (Kleih, 2012b).

6.2.4 Application of the Method in this Study

In the context of SPS standards, issues and measures can be seen in the context of a VCA with the ultimate aim of repositioning the value chain and create more value added to the

benefit of producers and other actors in the chain (Kleih, 2012b). This study therefore adopts the methodological steps shown in *Figure 6-1* below:

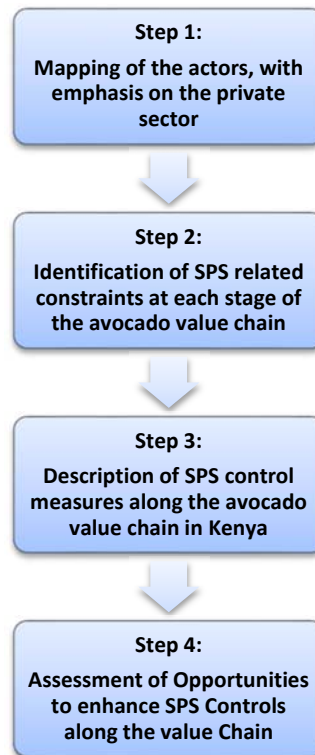


Figure 6-1: Methodological Steps in Value Chain Analysis

The findings are from primary sources of information generated through interview of smallholder and large producers, avocado traders, exporters and key persons from industry associations and other stakeholders.

6.3 Findings and Discussions

6.3.1 Mapping of the Avocado Value Chain Actors in Kenya

6.3.1.1 Structure of the Value Chain

The structure of avocado value chain in Kenya is complex. The main segments of the chain are typical of global agricultural value chains, with avocado supply side activities carried in Kenya but targeting high-value markets both within the country and abroad. This structure involves avocado production activities and services, as well as a range of supporting industries. *Figure 6-2* summarizes the structure of the avocado value chain in Kenya.

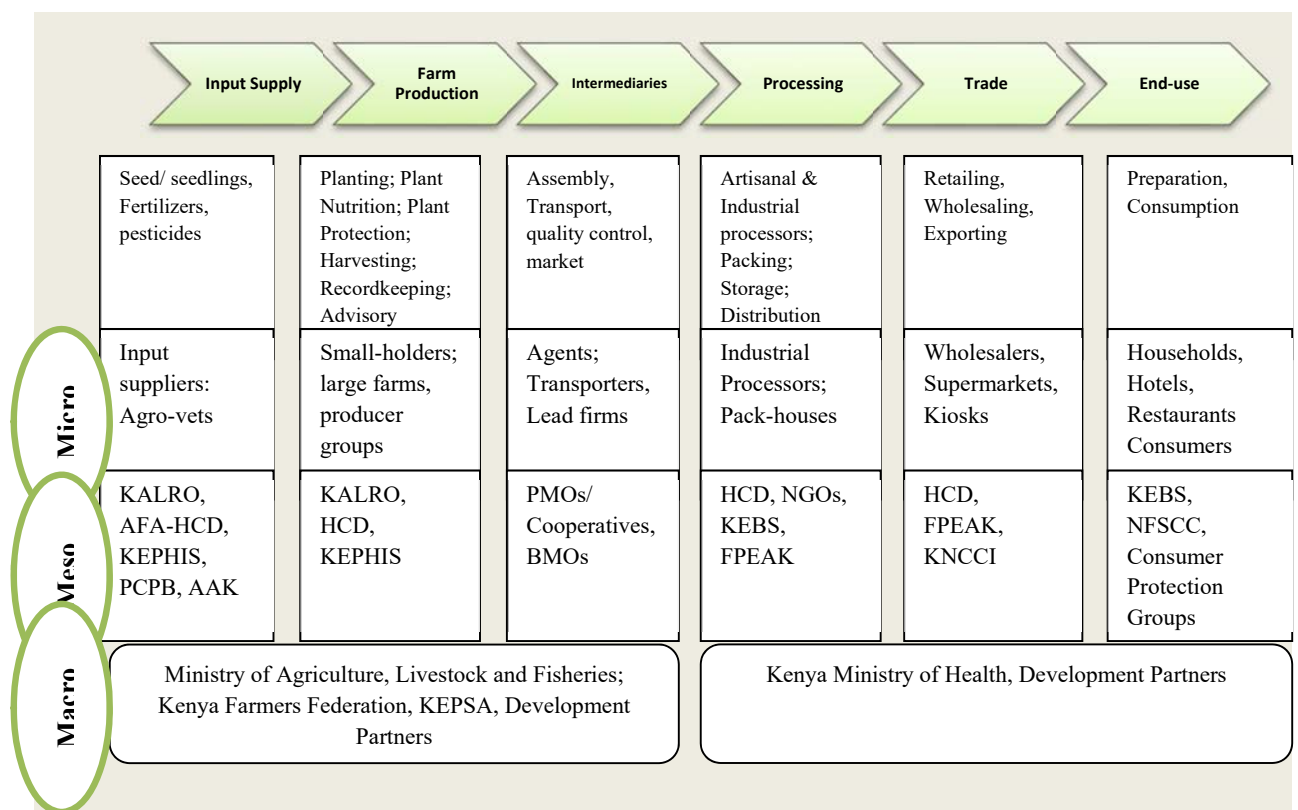


Figure 6-2: Structure of Kenyan Avocado Value Chain

There are many actors involved in Kenya's avocado value chain, with several interactions between them. At the micro level are private sector actors involved directly with avocado production and marketing activities. This includes inputs providers, avocado producers, assemblers, transporters, wholesalers, processors, supermarkets, hotels, exporters and other individual service providers. This group is generally entrepreneurial and is the one directly affected by factors of production and marketing systems, and are more concerned with saving costs and maximizing profits.

At the meso level are actors who are either farmer associations or business member organizations, or government institutions providing services directly to micro level actors. In the private sector, the Agro-chemicals Association of Kenya (AAK) is a business member association for manufacturers and distributors of agricultural chemicals and associated supplies. Other associations include producer co-operatives, and the Fresh Produce Exporters Association of Kenya (FPEAK). In the public sector are government institutions such as Kenya Agricultural and Livestock Research Organization (KALRO), Universities, Kenya Plant Health Inspectorate Service (KEPHIS), Horticultural Crops Directorate (HCD), Pest control Products Board (PCPB), and the Kenya Bureau of standards (KEBS).

Actors involved at the macro level are those generally touching on policy, and include mainly the different government Ministries, development partners and apex private sector associations. International trade agreements and regional trade contexts influence decision makers at policy level. At the same time policies developed at macro level provides the framework conditions in which avocado value chain actors operate.

6.3.1.2 Description and Governance of Avocado Value Chain in Kenya

The avocado value chain brings together many actors performing different roles and functions. For a long time the private sector worked independently of government. In the recent years there has been much emphasis on SPS and regulations. Public sector institutions are actively involved at each stage of production, processing and trade of avocado. While the public sector provides the framework conditions in terms of SPS policies, legislation and regulations, the private sector implements the requirements.

Figure 6-3 below summarises the avocado product flows and SPS service providers at each stage.

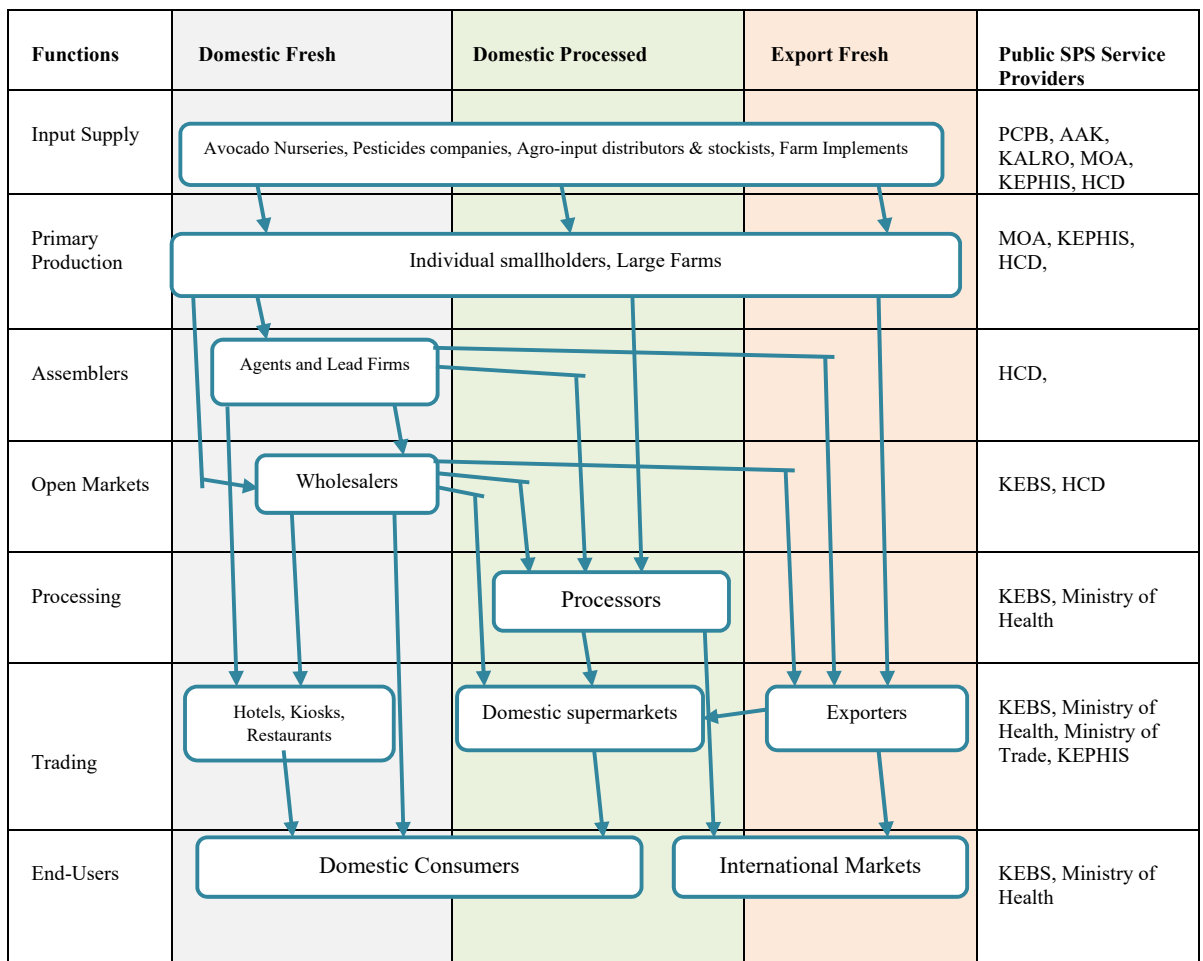


Figure 6-3: Public Sector SPS Service Providers along Avocado Value Chain in Kenya

There are many producers at the primary production level, but the marketing and export trade of avocado is dominated by only a few actors. There are also multiple private standards that are implemented by value chain actors, but greater emphasis is now being seen toward SPS standards.

Input supply

There are several agencies at the input supply stage of the avocado value chain. The main agencies involved in SPS controls for inputs include the Pest Control Products Board (PCPB); the Agriculture and Food Authority (AFA); the Kenya Plant Health Inspectorate Service (KEPHIS) and the Ministry of Agriculture, Livestock and Fisheries (MOALF). The main avocado varieties grown in Kenya include *Fuerte*, *Hass*, *Puebla*, *Duke* and *G6*. The main varieties grown for export market are *Hass* and *Fuerte*, while for domestic market its *Puebla*, *Duke* and *G6*. The varieties are sourced from private nurseries owned either by individuals or group of producers, or from the Kenya Agricultural and Livestock Research Organization (KALRO) commercial nurseries.

Inorganic fertilizers, including liquid micro-nutrient foliar feeds are purchased by producers from stockists (also called *agrovets*), currently scattered in all avocado producing regions in Kenya. The fertilizers sold by stockists are not necessarily due to avocado production, but are nevertheless to address prevailing soil conditions in accordance with crops grown in different regions. Local industrial production capacity for inorganic fertilizers is very limited in Kenya hence on fertilizer imports. While large farms may purchase inorganic fertilizers in bulk for use on avocado, it is also common practice for smallholders either not to use any purchased inorganic fertilizers. However,

the use of organic fertilizers generated from animal manure or compost from crop residues is common.

Plant protection products manufactured and distributed by several domestic and multinational companies are widely available in major retail *agrovets* shops. As with inorganic fertilizers, stockists do not necessarily target avocado for their sales. While large farms may use a variety of plant protection products, smallholder producers rarely purchase them for use on avocado. Importation, registration, use and disposal of plant protection products in Kenya are regulated by the Pest Control Products Board (PCPB). The manufacturers and distributors of plant protection products form the membership of the Agro-chemicals Association of Kenya (AAK) which is a business members association that advocates for concerns of its members.

Avocado Production:

Avocado is grown in several agro-ecological zones in Kenya, with the majority being produced in central and western Kenya. Avocado performs well in the higher midlands to lower highland zones of Kenya at an altitude of between 1200m and 2200m above sea level. Suitable growing areas in Kenya include Kakamega, Kiambu, Trans Nzoia, Thika, Muranga, Meru, Machakos, Embu, Nyeri, Makueni, Kirinyaga, Kisii, and Nyamira. The main production areas for export fruit are Central and Eastern Provinces, especially Thika, Murang'a, Nyeri, Kiambu, Meru, Kirinyaga and Embu.

Approximately 85 per cent of Kenyan avocado is grown by smallholders, owning on average less than 10 avocado trees. There are also medium to large scale producers who grow specifically *Fuerte* and *Hass* varieties targeting export markets. The large farms occasionally sub-contract smallholder producers for their avocado supplies. Smallholders

grow different varieties both for export markets and domestic markets and consumption. Those linked to the exporters generally produce their avocados through producer groups registered under the Department of Social Services. *Table 6-1* below summarizes the differences in avocado production systems in Kenya.

Table 6-1: Main Differences in Avocado Production Systems in Kenya

Smallholder farms	Large farms
Large trees - mostly un-pruned	Small trees - kept pruned
Varied level of advice on agronomy	Advice provided by in-house specialists
Little use of pesticide	Pesticides are used
Sporadic production - two seasons, but some all year round	Regular production - one season
Big losses from diseases such as anthracnose, which affect quality	Low losses from pests and diseases
Marketed via middlemen or (for out-growers) via link with exporter	Marketed directly to exporter

Source: Adapted from (Edewa, et al., 2010)

The cumulative production area across Kenya has been decreasing over the years while the volumes and values increased in 2010, as shown in *Table 6-2* below.

Table 6-2: Avocado Production Statistics 2006-2010

Province	Area (Ha)					Production (MT)				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Central	2411	2411	2358	1936	1845	31343	31343	36370	33398	43748
Coast	124	124	87	124	158	1612	1612	870	1172	1334
Eastern	1682	1682	1149	1246	1292	21866	21866	12639	13320	13716
Western	558	563	641	667	725	7254	7319	8333	6392	7250
Nyanza	1334	1436	1522	1504	1613	17342	18668	33484	33086	38157
R. Valley	887	984	976	671	464	11531	12792	12675	5780	8856
Nairobi	6	3	19	23	28	78	39	152	180	145
Total	7002	7203	6752	6171	6125	91026	93639	104523	93328	113206

Source: (HCDA, 2010a)

The decrease in production acreage is occasioned by competition from alternative high value horticultural crops. There is also increased land pressure due to rising population and conversion of agricultural land in high production regions of central Kenya (e.g. Kiambu and Muranga) into real estate and industrial uses. Major producers of avocado have been converting their orchards to produce varieties that target new markets (for example, converting from local varieties into improved varieties like *Hass* in order to target European markets).

Intermediaries

Intermediaries may be produce marketing organizations (PMOs), lead firms or individual middlemen (*brokers*). The intermediaries play a big role after harvest, and their functions involve post-farm quality control, consolidation and distribution to various destinations. In some cases smallholder producers, intermediaries act as first market for the produce, replacing the need for the producers to look for markets on their own. In other cases intermediaries only handle the produce on behalf of farmers themselves. In the case of large farms, the role of intermediaries may be limited to provision of transport services alone.

PMOs consist of a single producer group and several groups working together in an umbrella marketing organization. The main role of the PMOs in avocado is to consolidate farm produce from individual producers, carry out quality control, organize market logistics and pay producers in accordance with individual supplies. PMOs are good entry points for establishment of contractual arrangements with buyers who may be located far away. They are also useful for building supply-side capacity in terms of quality and quantities required by markets. Some PMOs work in the framework of legally registered

savings and credit co-operatives (SACCOs) and are able to provide services to individual producers in good agricultural practices and in marketing of produce as well.

Middlemen (or '*brokers*') are far too common in domestic marketing of avocados in Kenya. While many individual producers sell their produce to *brokers* at base minimum farm-gate prices for lack of better alternatives, buyers of produce also use them a lot whether for exports or for domestic markets. The ability of *brokers* to consolidate produce and to transport it from the farm-gate to the markets has positioned them as a necessary 'devil' because they are able to provide quick solutions to suppliers and buyers of the produce without necessarily getting into the qualitative aspects. In most cases the *brokers* work without a binding contract with their clientele, which has been a source of outcry over the years from individual producers and buyers of avocado who have fallen prey to *brokers*.

Avocado Processing

Until 2007 there were five industrial processors who processed ripe avocado fruits into edible oil or cosmetics. In the recent past there has been an increase in avocado processing both at artisanal and industrial processing levels as many people learn the uses and benefits of avocado. The processors buy specific varieties with high oil content, which is slightly different from the fresh fruit market. Although processors offered farmers an opportunity to sell selected varieties during periods of overproduction, the prices are generally lower than those provided in fresh fruit markets.

Industrial processing units are required to observe hygiene and food safety requirements by the implementation of mandatory national product standards from the Kenya Bureau of Standards (KEBS). Processing plants meeting KEBS requirements are issued with the

KEBS Standardization Mark. In addition, a number of avocado processing plants have implemented either the Dutch HACCP standard or ISO 22000 Food Safety Standard, both of which are process standards following the Hazard Analysis and Critical Control Point (HACCP) methodology as provided for by Codex. The final products from industrial processing are either sold through the domestic supermarkets or exported.

Avocado marketing

Local market takes over 98 per cent with some avocado being processed into oil. The oil production industry is in a nascent stage with a growth potential to absorb close to 10 per cent of the production. Avocado represents around 17 per cent of the total horticultural exports from Kenya - the average annual export of avocados from Kenya is currently around 3 million standard 4kg boxes (12,000 tons). About 30 per cent of avocado fruit goes to waste due to post-harvest losses, but there are also challenges related to quality, traceability and conformity to standards for the growers and exporters dealing with the export markets.

There are three categories of exporters: experienced exporters that obtain their supplies from own farm production; responsible exporters that obtain their supplies from contracted growers in a supervised system; and small traders that buy their supplies generally from *brokers* and other uncontrolled sources. Over 80 per cent of Kenyan avocado is exported via six large exporters who link directly with buyers abroad. However, these exporters deliver the avocado to specific high value markets abroad. Wholesalers and supermarkets which determine the quantities and quality and safety standards of products they procure. In the domestic value chain, the wholesalers, the

processors, supermarkets and hotels still drive the standards, varieties, quality and prices of avocado.

In terms of quality perceptions for exports from Kenya, avocado from large, integrated farms is considered the best because of uniform quality control throughout the farm production process, harvesting and post-harvest processes. Second in ranking is avocado from experienced exporters and traders who do not grow their own avocado, but contract and supervise producers and are able to carry out quality control and manage logistics for a good grade. The third category comprises smaller to medium sized exporters who purchase avocado fruit from brokers, with no reliable traceability information on crop husbandry, fruit maturity or even mode of transport.

6.3.1.3 Avocado Product and Income Flows

Avocado value chain in Kenya is buyer-driven, both for the domestic and export market avocado flows. The value chain is typically characterised by vertically integrated enterprises that control the production system and allocate the production on the basis of comparative cost advantage. The avocado value chain is therefore highly labour intensive, which provides employment and income for thousands of Kenyans, in particular the youth, women and rural farmers. This implies that smallholder producers should align themselves more and more to produce avocado that meets buyer requirements in terms of consistency in quantity and quality on the one hand and compliance the trade standards on the other. This offers both challenge and opportunity to smallholder producers whose participation in global value chains has been under threat due to limited knowledge and other productive capacity gaps.

Figure 6-4 describes the distribution channels after harvest and the various SPS service providers.

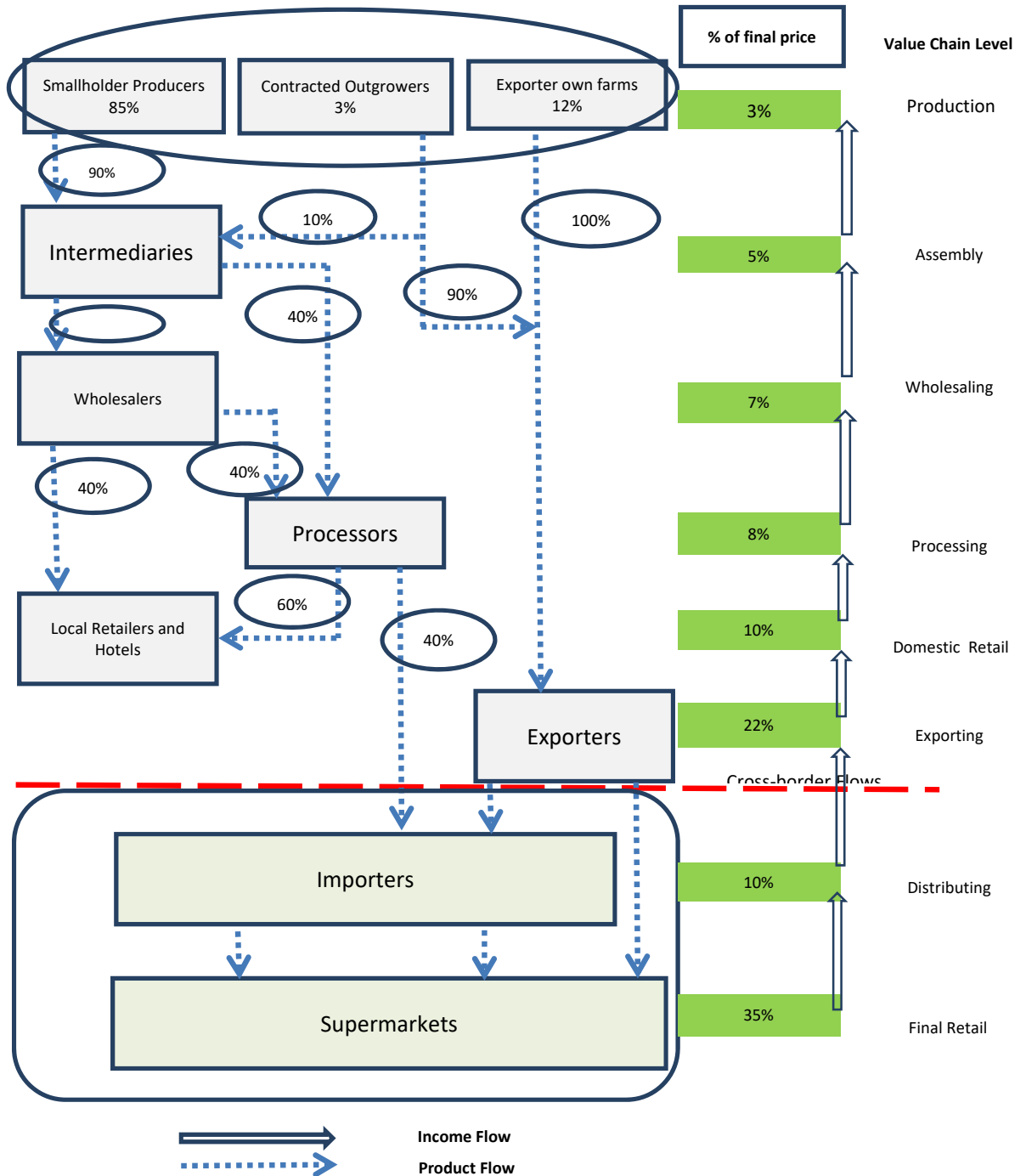


Figure 6-4: Avocado Product Flow and Income Distribution

Avocado marketing takes different routes. Three main routes can be identified, with several subsidiaries between them: the domestic fresh; domestic processed and export fresh marketing channels. While each level of the chain serves as a first market to the previous step, the ultimate market for avocado is the consumers within and outside of the country. In general approximately 98 per cent of all avocado produced in Kenya is marketed or utilized locally mainly through wholesale markets, supermarkets, industrial processors, hotels and restaurants, and other retailers, while only about 2 per cent is exported.

In 2010 avocado was the leading export fruit from Kenya, comprising 62 per cent of all fruit exports from Kenya. Kenya was ranked third globally among the five principal sources of summer avocado, with 15 per cent global market share down from 31 per cent in 2001. Europe is the main export destination for avocado exports from Kenya although the market share has reduced from 13 per cent in 2001 to 6 per cent in 2010. The leading European countries importing avocado from Kenya include France, The Netherlands, Spain and United Kingdom (UK). Most avocados from Kenya are exported by sea, mainly to Marseilles, France, via the Red Sea. In addition to France, other markets include the Netherlands, United Arab Emirates, United Kingdom, Saudi Arabia, Spain, Denmark and Egypt.

6.3.2 SPS Constraints along the Avocado Value Chain

6.3.2.1 SPS Constraints in Input Supply

The main SPS concern at input supply stage is pests and diseases of avocado that may be transmitted through planting material. A number of smallholder producers acquire seedlings from their on-farm nurseries established using seed from old trees, some of

which may carry perennial diseases or pests. The majority of avocado producers source their seedlings from private nurseries. Both these sources, if not certified for freedom from diseases and pests, are likely to introduce plant health risks into new orchards. The number of nurseries registered by AFA-HCD and certified by KEPHIS to provide clean avocado seedlings is also limited.

There is also danger of introducing heavy metals and other toxic substances that may pose food safety problems to harvested produce. This may arise from uncontrolled manufacture and distribution of fertilizers and plant protection products or from deceptive practices from unscrupulous traders selling unauthorised/counterfeit products. In 2008, for example, laboratory analysis by KEPHIS revealed that some consignments of imported inorganic fertilizer had high composition of Cadmium. Also, while importation and registration of plant protection products that are known to be effective for control of pests and diseases is done by PCPB, there are situations where violations of regulations and procedures have been noted.

6.3.2.2 SPS Constraints at Farm Primary Production Level

One of the main SPS concerns in avocado production at farm level in Kenya is prevalence of diseases and pests. The main diseases of avocado in Kenya include anthracnose (*Colletotrichum gleosporioides*), root rot (*Phytophthora cinnamomi*) and *Cercospora* leaf spot (*Cercospora puperea*). There are a variety of pests that attack avocado, many of which are classified as quarantine or regulated non-quarantine pests. Such pests include fruit fly species, including the invasive *Bactrocera invadens*, which has resulted in trade bans for Kenyan avocado in South Africa and the USA since 2007 and 2009 respectively.

One of the main challenges in avocado production is low levels of knowledge in general crop husbandry practices by smallholders, especially in pest and disease diagnosis and management. Although insect pest problems can pose a problem in marketing of avocado (especially if a pest has quarantine status), insect pests are not currently a problem in avocado production at farm level.

In both the public and private sectors there is limited capacity to conduct scientific risk assessment and development of risk management plans which should be a basis for preventative actions. Pest surveillance activities from government are limited, while implementation of area-wide strategies in disease and pest control is difficult at micro-level. Where laboratory analysis is required by buyers of producers in order to ascertain compliance with food safety standards, the cost of laboratory testing and analysis of chemical and microbiological contaminants is not affordable by many smallholder producers. Similarly, food safety management practices at farm level are not effectively coordinated for most smallholder production. There are weak systems among majority of smallholder producers for management of food safety hazards and control of poor practices that may compromise safety and integrity of produce.

6.3.2.3 SPS Constraints with Intermediaries

Once harvesting of avocado has taken place, most post-harvest and transport activities are done by brokers whose knowledge and understanding of food safety and hygiene requirements is limited. Contamination of produce may occur from dirty transport or storage facilities. A common practice during transportation by intermediaries is to use open pick-up trucks which are not necessarily dedicated for transportation of fresh farm

produce. Contamination may also arise from poor hygiene of handlers themselves or dirty washing water to remove mud during rainy seasons.

Many of the intermediaries are unregulated and so enforcement of traceability systems and good transportation practices for fresh produce are rarely observed. The common practice is to bulk produce from different sources and transport it together. This makes it difficult to make follow-ups and trace back to the farm in case of food safety or plant health issues being picked up in the forward stages of the value chain. Record keeping, which should maintain the history of the produce sold with regard to SPS matters are also seldom kept by intermediaries.

According to AFA-HCD, awareness on food safety and traceability systems among intermediaries is very low, and therefore regulation of intermediaries and consolidation of trade information from intermediaries is a major SPS challenge in Kenya's avocado value chain. AFA-HCD is implementing registration programme for suppliers of fresh produce and requires identification of sources of produce and points of sale for consignments handled by intermediaries. However, SPS awareness programmes remain inadequate.

6.3.2.4 SPS Constraints at Processing Level

Most processors are not able to ascertain the primary source of their supplies because of a lack of proper traceability system. Most avocado fruits procured for processing are obtained through intermediaries or from wholesale county markets but without associated production records, including use of plant protection products, fertilizer applications or history of production sites. There are possibilities that such consignments of avocados may contain food safety risks such as microbial contaminants, heavy metals, or residues

of pesticides. Where food additives and processing aids are used there are possibilities of residual carry-over beyond safe maximum use levels.

A major challenge in avocado processing is low production capacities and technologies that convert primary produce into diverse products. There is a general need to build capacity in implementing Good Manufacturing Practice (GMP) and food safety management systems, which are currently largely inadequate among a variety of processing establishments. Major investments are needed in boosting avocado processing technologies with associated GMPs such as washing and waxing, and food safety management systems such as Hazard Analysis and Critical Control Point (HACCP).

6.3.2.5 SPS Constraints in Avocado Trade

SPS concerns for imports or exports of avocado include the danger of transmitting quarantine or regulated non-quarantine pests and diseases through trade. Kenya is among countries listed by the Federal Government of the USA from which imports of fruits are prohibited due to risk of transmitting *B. invadens* which is present in Kenya. In terms of food safety, there are risks of microbial contaminants, pesticide residues and excesses of food additives (for processed avocado) and heavy metals.

There are several SPS related constraints in avocado trade. Importing countries are imposing increasingly stringent SPS standards. Kenyan exporters must demonstrate compliance with importing countries' SPS requirements by supplying goods that not only meet quality standards, but most importantly food safety and phytosanitary regulations imposed by importing countries. As demonstrated in the case of South Africa's ban on imports of avocado from Kenya, there are capacity challenges among producers and the private sector to comply with SPS requirements of high value export markets for fresh

avocado. The challenges to demonstrate control of food safety hazards and phytosanitary concerns spread across the entire supply-side of the avocado value chain.

Figure 6-5 summarizes the main SPS related constraints along the avocado value chain.

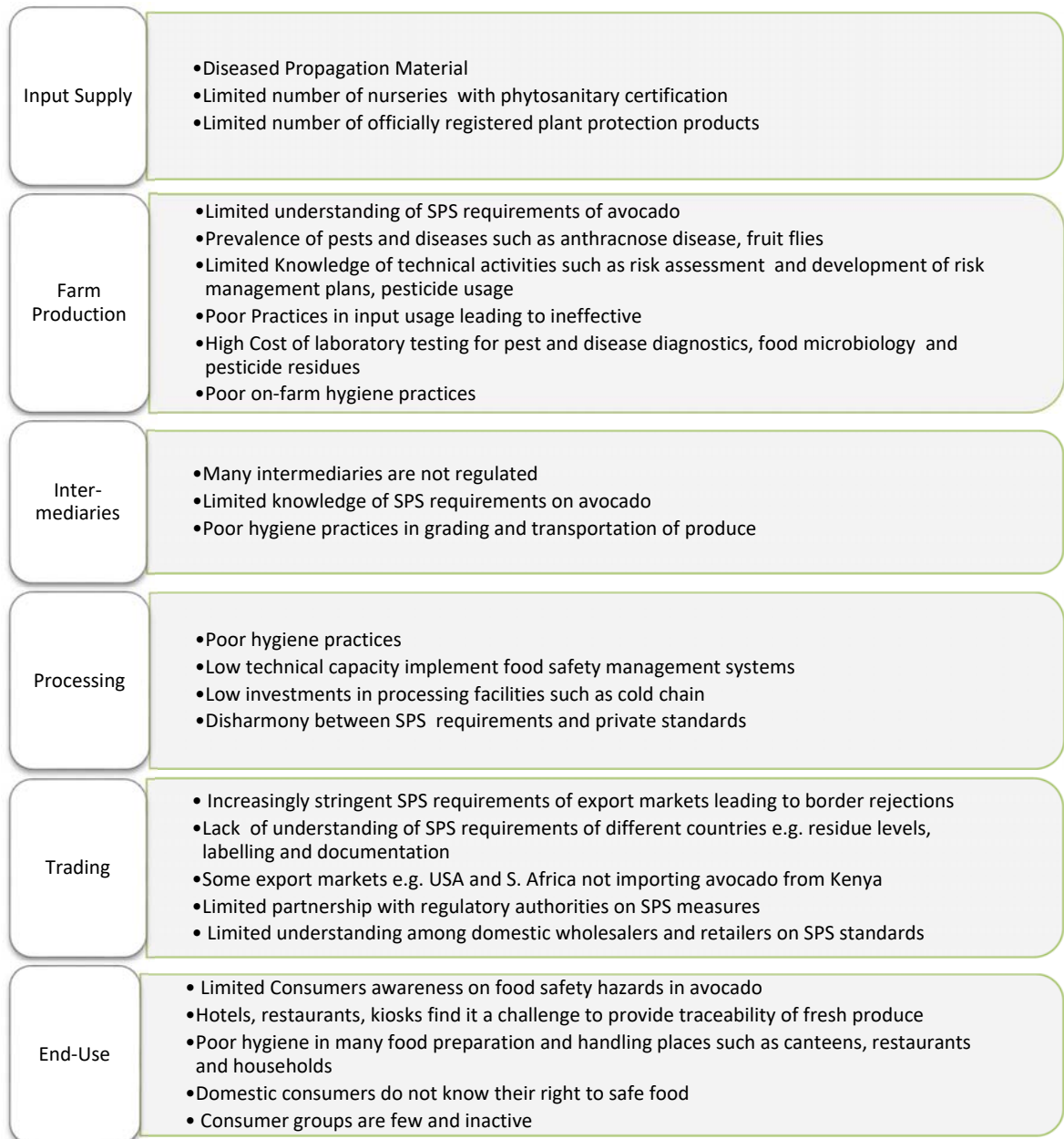


Figure 6-5: SPS Constraints along the Avocado Value Chain in Kenya

6.3.3 SPS Control Measures in Place to Address Current Constraints

Table 6-3 provides a summary of SPS constraints at farm level, including current SPS controls being implemented.

Table 6-3: SPS Control Measures at Farm Level

	SPS Challenges	SPS Controls in Place	Additional suggestions
Input Supply	<ul style="list-style-type: none"> • Limited number of nurseries with phytosanitary certification • Limited number of officially registered plant protection product 	<ul style="list-style-type: none"> • Phytosanitary certification of nurseries producing seedlings 	<ul style="list-style-type: none"> • Review list of registered plant protection products and assess need to fast track registration of other substances • Awareness creation and training for input suppliers on SPS standards and requirements for various inputs
Primary Production	<ul style="list-style-type: none"> • Limited understanding of SPS requirements of avocado • Prevalence of pests and diseases such as anthracnose disease, fruit flies • Limited Knowledge of technical activities such as risk assessment and development of risk management plans, pesticide usage • Poor Practices in input usage leading to ineffective • High Cost of laboratory testing for pest and disease diagnostics, food microbiology and pesticide residues • Poor on-farm hygiene practices 	<ul style="list-style-type: none"> • Training in Integrated Crop Management (ICM) and Integrated Pest Management (IPM) in avocado • Implementation of good Agricultural Practices in some farms 	<ul style="list-style-type: none"> • Provide SPS awareness programmes • Train technical public and private service providers on SPS standards • Dialogue and agreement with buyers of produce on specific quality and SPS requirements and what support they can offer • Provide guidelines in management of specific pest problems at farm level • Develop avocado production guide that addresses phytosanitary and food safety risks during primary production • Assist individual producers conduct SPS risk assessments and develop proper management plans for identified risks • Develop procedures for control of and support to individual producers, and incorporate mechanisms for farm inspections for compliance
Avocado Marketing	<ul style="list-style-type: none"> • Many intermediaries are not regulated • Limited knowledge of SPS requirements on avocado • Poor hygiene practices during transportat produce 	<ul style="list-style-type: none"> • Develop procedures and regulations on qualification of different intermediaries 	<ul style="list-style-type: none"> • Define specific SPS related roles to be provided by intermediaries • Strengthen relations between producers and intermediaries in SPS management at farm level

6.3.3.1 Control of Farm Inputs

It is government regulation that all nurseries be registered by the Horticultural Crops Directorate (HCD), and that they are issued a phytosanitary certificate after inspection by the Kenya Plant Health Inspectorate Service (KEPHIS). Use of genetically modified material (GMO) as propagation material is not currently permitted in Kenya. The control of commercial nurseries which are a source of planting material is not effective enough. In fact it is difficult to determine how many nurseries exist despite the requirement by HCD that all commercial nurseries be registered.

From the input supply point of view there are weaknesses linking the needs of producers with inputs that are compliant with SPS standards. However, use of these products by smallholder producers for pest control is limited. As for the private sector actors, manufacture, distribution sale and use of plant protection products are regulated by PCPB. The Agrochemicals Association of Kenya has been assisting its members comply with buyer requirements for plant protection products, including determination of maximum residue levels (MRLs).

6.3.3.2 SPS Controls for Primary Avocado Production

Overall awareness on SPS requirements in avocado production is limited among value chain actors and regulators as well. While this is a function of the public sector, SPS awareness programmes have not specifically targeted avocado industry. In addition, there is currently no production protocol available to guide the actors on SPS requirements for avocado. The Horticulture Task Force, which is a public-private partnership arrangement establishment in 2006, is perhaps the only forum where avocado issues are discussed in

detail. However, its linkages with the National Food Safety Coordination Committee and National SPS coordination Committee are not clear.

Table 6-4 summarizes control measures in place to address the existing SPS related constraints in the avocado industry in Kenya.

Table 6-4: SPS Challenges and Control Measures at Industry Level

	SPS Challenges	SPS Controls in Place	Additional suggestions
Raw material procurement	<ul style="list-style-type: none"> • Lack of traceability as produce is assembled • Poor hygiene practices during collection and transport • Reduced SPS controls during times of scarcity of supply and competing needs between export and domestic market channels • Limited awareness of SPS requirements by suppliers of raw materials such as farm produce, packaging material and equipment 		<ul style="list-style-type: none"> • Introduce and enforce supplier contracts that specify SPS requirements; • Awareness creation among suppliers on SPS requirements of avocado
Processing	<ul style="list-style-type: none"> • Poor hygiene practices • Low technical capacity to implement food safety management systems • Low investments in processing facilities such as cold chain • Disharmony between SPS requirements and private standards • 	<ul style="list-style-type: none"> • Provide technical assistance to industries to implement food safety management systems 	<ul style="list-style-type: none"> • Develop SPS training programme jointly between regulatory authorities and processing plants/ pack-houses • Provide linkages to micro-finance institutions for capital investments that address SPS risks
Trade	<ul style="list-style-type: none"> • Increasingly stringent SPS requirements of export markets leading to border rejections • Lack of understanding of SPS requirements of different countries e.g. residue levels, labelling 	<ul style="list-style-type: none"> • Public-private partnerships in SPS management in avocado 	<ul style="list-style-type: none"> • Embrace partnership with regulatory bodies and the WTO National Enquiry Points to understand and address the SPS requirements of various importing countries • Incorporate official requirements in the export companies'

	SPS Challenges	SPS Controls in Place	Additional suggestions
	and documentation <ul style="list-style-type: none"> • Some export markets e.g. USA and S. Africa not importing of avocado from Kenya • Limited partnership with regulatory authorities on SPS measures • Limited understanding among domestic wholesalers and retailers on SPS standards 		production procedures/ SPS management systems <ul style="list-style-type: none"> •
End User	<ul style="list-style-type: none"> • Limited Consumers awareness on food safety hazards in avocado • Hotels, restaurants, kiosks find it a challenge to provide traceability of fresh produce • Poor hygiene in many food preparation and handling places such as canteens, restaurants and households • Domestic consumers do not know their right to safe food • Consumer groups are few and inactive 		<ul style="list-style-type: none"> • Hotels and open markets where avocado and other fruits and vegetables should implement hygiene and food safety measures • SPS awareness among domestic consumers and general public should be enhanced. • Need to strengthen the consumer protection organizations

6.3.3.3 Controls during Avocado Marketing

With increased demand for traceability and implementation of safety and quality standards especially for produce destined for exports, *brokers* have been a major source of concern in Kenya's fresh fruit exports. AFA-HCD has recently moved to register and regulate the activities of *brokers* in fresh fruits and vegetables industry in Kenya. AFA Regulations, 2016 are in line with the Horticultural Industry Code of Practice which

requires all intermediaries to be vetted, registered and monitored in accordance with established rules.

In the recent years there has been an emergence of lead firms –enterprises that have positioned themselves as an improved form of *brokers*. In addition to the role of *brokers* and PMOs, the lead firms provide technical services as well. The services may include extension services, supply of inputs on credit, provision of training, marketing of produce in a contractual arrangement and payment to farmers on agreed payment schedules and prices. Lead firms are a useful entry point for implementation of standards required in international markets. They are also able to maintain traceability and organize production and marketing in way that is sustainable in order to remain in business.

6.3.3.4 Controls during Trade

Exporters of avocado are required by law to acquire an export license from HCD and a phytosanitary certificate from KEPHIS for every consignment exported. A certificate of conformity to quality and safety aspects is also required. Exporters of avocado are therefore required to implement food safety management systems in their operations and observe hygiene at all times while handling produce.

Private sector associations have been instrumental in ensuring that their members remain in business by addressing SPS regulatory requirements and specific concerns of markets. They are useful instruments for industry self-regulation and policy advocacy. The Fresh Produce Exporters Association (FPEAK) of Kenya has supported its members to implement SPS related programmes, including establishment of the Horticultural Produce Training Centre (HPTC). There is, however, currently no industry association for avocado growers in Kenya.

From avocado export market reports there are concerns that should be addressed in order for Kenya to remain competitive. These include uneven maturity of fruits; inability to respect delivery schedules; poor or no traceability; and poor attention to quality aspects. Phytosanitary concerns have not been raised by individual buyers abroad, except for the precautionary action taken by South African government to stop avocado imports from Kenya, in order to safeguard their fruit industry from likely damage from an invasive fruit fly reported in scientific journals as present and distributed in Kenya.

6.3.4 Financial Implications of Implementation of SPS Measures

Producers implementing SPS control measures at farm level not only fetch better price on their avocado production, but also have reliable access to higher value markets. Such producers are contracted by fresh produce exporters who in turn provide technical advice and guidance to producers through their technical team. This improves the quality of the produce from the farm which then fetches better price because of guaranteed traceability, quality and safety.

Majority of smallholder producers do not use plant protection products or inorganic fertilizers on avocado. Implementation of SPS controls is done through adoption of good agricultural practices, which itself has additional benefits to the producers and the value chain in general. Implementation of SPS controls yields better returns for all actors as shown in *Appendix 3* except in the case for wholesalers. Avocado traded by wholesalers in the municipal markets carries with it the same price and cost of procurement just like SPS controlled produce.

Table 6-5 below shows comparisons of gross and net margins for Kenyan avocado at farm level for situations with and without SPS Control Measures. Implementation of SPS control measures gives higher returns and net margins to producers.

Table 6-5: Gross and Net Margins for Kenyan Avocado Value Chain at Farm Level (2012)

<i>Activity (per tree)</i>	<i>Cost without Control Measure (KES)</i>	<i>Cost with Control Measures (KES)</i>
Revenue		
Yield (Kilos per tree)	300	400
Price (KES per kilo)	15	25
Revenue	4,500.00	10,000.00
Variable Production Costs		
Family Labour (valued at market Costs)	400	700
Hired Labour not related to control measures	400	700
Inorganic fertilizer		80
Manure	50	50
Pesticides		500
Technical Advise		100
Training		100
Transportation		120
SPS control Measure 1-Traps		100
SPS control Measure 2- Pesticides		600
SPS control Measure 3- Biological Control		200
SPS control Measure 4- Cultural Practices		200
Farm implements	100	200
Other Variable costs	200	300
Interest on Working Capital	184	632
Total Variable Cost	1,334.00	4,582.00
Fixed Costs		
Management	200	400
Cost of land (Opportunity Cost, 10%)	375	750
Cost of control Measure 1- Traps (annualized)		300
Cost of control Measure 2- Pesticides (annual)		300
Other fixed costs	300	500
Total Fixed Costs	875	2250
Margins		
Gross Margin	3,166.00	5,418.00
Net Margin	2,291.00	3,168.00

Source: Author's Interviews with Avocado Producers in Central and Eastern Kenya, 2012

6.3.5 Opportunities to enhance SPS Compliance along the Value Chain

In general, coordination functions along the avocado value chain in Kenya appear to be inadequate. Exploiting the linkages among actors and agencies along the value chain several opportunities do exist to enhance SPS compliance. *Table 6-6* below summarises the roles and responsibilities of the main actors involved in supply of inputs and other farm supplies in relation to SPS matters.

Table 6-6: SPS Institutions involved in Supply of Farm Inputs for Avocado Production

<i>Service Providers</i>	<i>Roles in SPS control and management</i>
Kenya Agricultural and Livestock Research Organization (KALRO)	<ul style="list-style-type: none"> • Research on pest/disease resistant varieties • Research on appropriate fertilizers that do not pose SPS risks such as heavy metals • Research and training in management and control of SPS risks including rational use of pesticides • Tested avocado seedlings
Agricultural Universities; International Centre for Insect Physiology and Ecology (ICIPE)	<ul style="list-style-type: none"> • Research on pest/disease resistant varieties • Research on appropriate fertilizers that do not pose SPS risks such as heavy metals • Research and training in management and control of SPS risks including rational use of pesticides
Kenya Plant Health Inspectorate Service (KEPHIS)	<ul style="list-style-type: none"> • Conduct Pest Risk Analysis • Phytosanitary controls
Pest Control Products Board (PCPB)	<ul style="list-style-type: none"> • Conduct efficacy trials for inputs in liaison with KALRO and other research organisations • Control of production/ manufacture and distribution of pest control products; • Control of Import, export and trade of pest control products; • Control of counterfeit pest control products
Agriculture and Food Authority (AFA)	<ul style="list-style-type: none"> • Promote best practices and regulate, the production, processing and marketing of avocado products; • Collect, collate data and maintain a database on avocado products • Determine the research priorities in avocado
Ministry of Agriculture, Livestock and fisheries (MOALF)	<ul style="list-style-type: none"> • Development and review of SPS policies and laws • Farmer training and extension services choice and safe use handling of farm inputs

Opportunities to enhance SPS controls along the value chain include the strengthening of value chain governance on the one hand, and upgrading the value chain on the other. Strengthening value chain governance may include, for example, developing and implementing SPS compliance strategy; strengthening public-private partnerships in SPS compliance; enhancing intersectoral collaboration; developing detailed guidelines to support implementation of SPS regulations; and establishing SPS awareness, education and extension programmes private sector and smallholder producers. Value chain upgrading may take the form of process, product, functional or inter-sectoral upgrading.

6.3.5.1 Strengthening Value Chain Governance

Linkages between research and development, policy formulation, avocado standards development, education and controls are generally weak. From the public sector point of view, there is no clear link between research and development and government policy formulation in addressing SPS weaknesses and constraints. In deed there is currently a weak link between policies and SPS regulations in fruits and vegetables within the country.

6.3.5.1.1 Research and SPS Risk Assessment Capabilities

In the area of research and development, KALRO and various universities are involved in SPS related research such as pest trials, disease controls, pesticide efficacy trials and training. KEPHIS, CABI and ICIPE are active in the area of pest risk analysis and research. One of the weakest areas in SPS controls is risk assessment capabilities. While Kenya has strong research and development institutions research in SPS related matters in avocado is poorly coordinated and priorities not well articulated. Tapping into and consolidating the existing fragmented SPS related risk assessments from various research

institutions has a great potential to identify SPS related issues along the value chain and address them in a timely manner. Tools to address SPS risks along the value chain can be production protocols or guidelines, SPS awareness information packs, and training packages for extension workers and private sector. Moreover, research is required to generate data and facts for policy makers, risk managers and standards development. Although AFA-HCD is making efforts to identify research priorities in the horticultural industry, it remains necessary to strengthen existing mechanisms for research in avocado.

6.3.5.1.2 SPS Policies and Strategies

Kenya does not have a consolidated SPS policy and strategies to address identified SPS constraints. Considering that there are many actors and agencies involved in the avocado value chain it is necessary to have an SPS policy that clearly defines roles and responsibilities of actors and SPS institutions in supporting compliance with set SPS regulations, procedures and programmes. Such a policy could be a sector-wide policy not necessarily specific to avocado. There is scope to enhance the existing National Horticulture Policy by incorporating actions to address SPS related matters.

6.3.5.1.3 SPS Laws and Regulations

The Crops Act, no. 16 of 2013 provides for the growth and development of agricultural crops and for connected purposes. It mandates AFA to establish and enforce standards in grading, sampling and inspection, tests and analysis, specifications, units of measurement, code of practice and packaging, preservation, conservation and transportation of crops to ensure health and proper trading. The Ministry of Agriculture, Livestock and Fisheries concluded development of new horticulture regulations (for fruits and vegetables) in 2016 based on Kenya Standard KS1758 to regulate and promote the

subsector. Plant health issues are regulated through the Plant Protection Act (Cap 324), the Suppression of Noxious Weeds Act (Cap 325), the Agricultural Produce (Export) Act (Cap 319), the Seeds and Plant Varieties Act (Cap 326), and the KEPHIS Act, No.54 of 2012. The KEPHIS Act mandates KEPHIS to ensure that movement and trade in plant and plant products do not cause the introduction, establishment and spread of pests within the country (Kenya).

Imports of avocado plants for planting and avocado fruit other than canned or bottled fruit must be inspected by KEPHIS. Plants imported for planting purposes, under a quarantine permit may, if necessary, be detained in quarantine or in special nurseries for observation before commercialization. Plant materials arriving in Kenya without authorization and accompanying documents are intercepted and either destroyed or held until the correct documentation is produced, or shipped back at the owners' cost.

For Food safety, the Food, Drugs and Chemical Substances Act (Cap 254) and the Public Health Act (Cap 242) provide for control of food safety hazards across the food value chain, and that microbiological, chemical and physical food safety hazards in fresh fruits and vegetables must not exceed set safety limits. With regard to processed fruits and vegetables, the Standards Act, Cap 496 provides for the establishment of KEBS to enforce relevant national standards for processed products. KEBS is mandated to require all processed fruits and vegetables processed in Kenya or imported for sale in the domestic market to conform to national standards.

6.3.5.2 Value Chain Upgrading in Compliance with SPS Regulations

6.3.5.2.1 Process Upgrading

In order to enhance controls of farm inputs there is a need to review current list of registered plant protection products and assess need to fast track registration of other substances used for pest control through PCPB and for fertilisers by KEPHIS. It is also necessary to create awareness and train input suppliers on SPS standards and requirements for various agro-inputs. Current efforts by AAK to create awareness for manufacturers and distributors of agro-inputs on emerging SPS issues can be enhanced and adopted as a regular public-private programme to address any SPS concerns with plant protection products and fertilisers.

To address the challenge of competition to comply with private standards in the avocado industry, leading exporters can increasingly focus on contracting smallholder producers and assisting them to implement good agricultural practices in order to comply with SPS regulatory and commercial requirements of buyers. Public SPS institutions could identify avocado farms implementing food safety and hygiene procedures and assist them to incorporate SPS requirements as well. This could be achieved by developing SPS control guideline or tools to assist private sector implement process controls for food safety and phytosanitary controls.

There exists also scope to establish SPS awareness programmes jointly between industry and public sector, including providing customised SPS training to technical personnel in public and private sector on SPS standards and guidelines for management of specific food safety related or pest problems at farm level. Such production protocols can help producers to develop proper management plans for identified SPS risks. Furthermore,

public sector can promote a system of internal self-assessments and industry self-regulation mechanisms that leverage on resources from private sector to achieve public goals.

6.3.5.2.2 Product Upgrading

Product upgrading has been taking place as producers are now being introduced to improved avocado varieties resistant to diseases in order to cut down use of plant protection products and improve quality and safety of produce. Smallholder producers can be assisted to upgrade their orchards by top-working (cutting down and grafting) and conversion into varieties preferred by high value markets abroad. At the same time, high value avocado product lines such as for prepared salads can be developed by processors and exporters of avocado. In this regard exporters in Kenya can increasingly focus on implementation of Hazard Analysis and Critical Control Point (HACCP) methodology to address any food safety hazards in avocado.

6.3.5.2.3 Functional Upgrading

Functional upgrading can be done for the avocado value chain in Kenya. Some exporters are already focusing more into controlling primary production activities by producers and this can be used to ensure that avocado procured is traceable and meets food safety and phytosanitary regulatory requirements. At the same time, extension services which were initially a preserve of public sector have shifted to the private sector. Government should provide SPS implementation manuals to SPS service providers. Lead firms have emerged to provide technical support services to producers. A number of smallholder producer groups could be linked directly with exporters so that they can benefit from SPS technical services to support standards compliance upstream.

6.3.5.2.4 Inter-sectoral upgrading

In order to effectively manage identified and emerging SPS risks, it is necessary that all producers, traders and service providers along the avocado value chain be registered and programme for SPS awareness and training be developed. Public-private mechanisms such as value chain participant platforms can be useful avenues for channelling information on SPS risks and management options. Value chain participant platforms bring together all relevant actors and service providers along the value chain to discuss SPS related and other concerns along the value chain in order to find cost-effective and sustainable solutions. Such platforms could be intersectoral and could be used to share best practices and lessons on managing SPS risks along the value chain.

Inter-sectoral upgrading can be exploited through public-private partnerships. Research on SPS issues on avocado can be done jointly between organizations like KALRO, universities and ICIPE. While avocado regulations are enforced by AFA-HCD and KEPHIS, the industry could take a leading responsibility in implementation of good husbandry practices and trade standards. Besides, the Horticulture Task Force is the sole inter-sectoral committee that discusses broad issues affecting Kenya's horticultural value chains from primary production to market access.

6.4 Conclusion

Breakdowns in food SPS controls along the value chain not only impact on consumer health, but can severely damage market access and reputation and lead to trade disputes. Integration into global value chains requires supply capacity, quality, efficient servicing, competitive pricing and the ability to meet importer mandated product standards and SPS

requirements. Pre-requisites for this are increased investment at producer and enterprise levels and in national trade support infrastructure.

The avocado value chain is typical to global agricultural value chains, with avocado produced Kenya being sold in high-value markets abroad, in addition to supplying domestic and regional markets. This structure brings together many actors, with several interactions between them. The value chain is buyer-driven and labour intensive, which is ideal for Kenya as a developing country.

The value chain faces three broad categories of SPS related constraints. Firstly, there are many economic rents and barriers to entry, which have affected productivity and competitiveness of the avocado value chain on the supply side. Secondly, the avocado industry faces constraints in producing avocado of required volumes and quantities in line with market specification and SPS standards. Thirdly, the framework conditions and support services for complying with market standards are inadequate and call for urgent strengthening.

The main reason for sub-optimal performance in compliance with SPS standards compliance is poor governance of the avocado value chain and high costs of compliance costs with market requirements. In general coordination mechanisms and enforcement of rules that govern avocado value chain actors are inadequate and ineffective. Inter-sectoral collaboration in a public-private framework has been established, but has not adequately addressed long-standing SPS compliance weaknesses. However, if these challenges are addressed, smallholders in Kenya can successfully participate in global agro-food value chains.

Kenya's fresh produce industry and its private-public partnership illustrate how adopting SPS standards can serve as a catalyst for trade and competitiveness. However, there is still need to intensify efforts to build political, farmer and private sector awareness of plant health matters, good agricultural practices (GAP), and safe use of pesticides through regular awareness programs and training courses, as well as increasing stakeholder consultation and participation including private sector.

6.5 Recommendations

- 1. There is need to conduct a detailed analysis of the long-standing SPS concerns of trading partners:* This will help to understand the root causes and status of the concerns and develop strategic interventions that will lift the avocado bans and open up new markets. Such a root cause analysis will also help point out at areas where policy development and review of existing legal and regulatory structures is needed. It will also point out areas along the value chain where interventions should be directed.
- 2. There is need to upgrade the avocado value chain in Kenya in order to address existing SPS related constraints:* Further upgrading will help Kenya to address SPS concerns being raised by trading partners and open up new high-value markets in industrialized countries. It is necessary to develop a detailed industry guideline that addresses both phytosanitary and food safety concerns along the avocado value chain. It will also help to improve productivity along the value chain and earn more income especially for smallholder producers whose livelihoods depend on the commodity.
- 3. Investments are required both in the private and public sectors in order to support compliance with agro-food standards required for accessing markets:* Kenya has already

invested substantially in supporting the competitiveness of horticultural value chains with export potential. There is, however, urgent need to invest further in export-oriented support services related to conformity of products to market requirements in order to expand trade and earn higher returns.

CHAPTER 7 INTEGRATING SMALLHOLDER PRODUCERS INTO GLOBAL VALUE CHAINS

A Survey of Smallholder Producers' Perceptions on South Africa's Ban on Kenyan Avocado

7.1 Introduction

7.1.1 Background

Avocado provides a source of livelihood to thousands of smallholder producers in Kenya, especially those in Central and Eastern Regions of the country. But the benefits of avocado are being threatened by weak SPS compliance systems. One such case is the import ban by South Africa on Kenya's avocado since 2007 due to fruit fly, *Bactrocera invadens*. Prior to the ban avocado exports to South Africa were on upward trend. However, the ban now threatens to completely lock out the South African market and increases the risk of more losses should other countries follow South Africa's actions. In order to sustain Kenya's vibrant horticultural industry, the ultimate goal should be to reverse recent trends where smallholder producers are gradually being marginalized from the rules-based multilateral trading system. The success will undoubtedly be determined by the effectiveness of the SPS system to deal with SPS risks and related challenges. An understanding of the performance of the SPS compliance system will help decision makers identify areas that need improvement in order to make necessary investments for SPS compliance in Kenya.

This section assesses the effectiveness of Kenya's SPS control system in supporting Kenya's smallholder producers participate in global value chains. It is expected that strong SPS control systems will enhance compliance with international market requirements and open up markets where access had been denied due to risks arising

from weaker SPS systems. Of particular interest in this study is the ability of Kenya's SPS system to re-open avocado exports to South Africa, a market which was lost in 2007 due to risks arising from spread of an invasive fruit fly, *Bactrocera invadens*. Moreover, the results of this study may be used by Kenyan authorities to develop an evidence-based approach in addressing SPS concerns related to South Africa's import ban on avocados from Kenya.

7.1.2 The Issue

In 2007, South Africa withdrew all import permits for avocado imports from Kenya with immediate effect as a consequence of the occurrence and distribution of *Bactrocera invadens* (Fruit fly) in Kenya and which has potential to damage South Africa's fruit industry through imports (Edewa, et al., 2010). *B. invadens* is an invasive fruit fly and important quarantine pest with potential to affect fruit imports from Africa (Drew, et al., 2005).

One of the concerns with South Africa's action is that smallholder producer will be cut away from export markets. The fear is that new requirements will either force smallholder producers out of markets to which they have hitherto had access, or impose conditions that only large-scale operators can meet, resulting in the marginalization of small-scale farmers. In both cases, the potential development benefits from increasing global trade in agri-food products would be reduced. A major test for Kenya's SPS system is whether or not it can help increase participation of smallholder producers in international and open up high value agro-food markets such as the European Union (EU) and the United States of America (USA).

7.1.3 Purpose of Study

Main Objective

This Chapter assesses the perceptions by Kenyan small-holder avocado producers on the usefulness of the national SPS controls and services.

Specific Objectives

- i. To determine to what extent smallholder avocado producers are informed about SPS regulations.
- ii. To gain an understanding of smallholders' involvement in pest risk analysis.
- iii. To find out the extent to which smallholder producers implement phytosanitary standards at farm level.
- iv. To find out which institutional arrangements are in place to support smallholder avocado producers implement phytosanitary standards in Kenya

7.1.4 Research Questions

- i. To what extend are avocado smallholder producers aware of SPS regulations?
- ii. Are smallholder avocado producers in Kenya involved in Pest Surveillance Programmes?
- iii. Do smallholder avocado producers in Kenya observe phytosanitary standards at farm level?
- iv. Which phytosanitary institutional arrangements are in place to support smallholder avocado producers in Kenya?

7.1.5 Scope of the Study

This study focuses on phytosanitary controls in export fruit sub-sector in Kenya, in particular, avocado. The study targets smallholder producers involved in avocado production across the main production regions in Kenya and covers various aspects of the phytosanitary control system in Kenya.

7.1.6 Conceptual Framework

The ability of smallholder avocado producers to access global markets depends upon their ability to implement recommended crop protection practices and observe phytosanitary regulations set by the government. The availability of plant health services are the backbone of a country's Phytosanitary Control System (PCS) and therefore define its effectiveness. Awareness creation and training for smallholder producers is therefore the starting point of a successful crop protection programme. In addition, there is need to conduct continuous surveillance and monitoring programme for pests classified as quarantine or non-quarantine regulated pests which can lead to restrictions on trade if detected. In sum, producers should be able to implement crop protection strategies which are developed after a pest risk analysis has been conducted. In any case effective crop protection strategies have to be implemented by producers, and this has to be supported by government through a regulatory framework for both imports and exports, and this is only possible with a strong institutional framework.

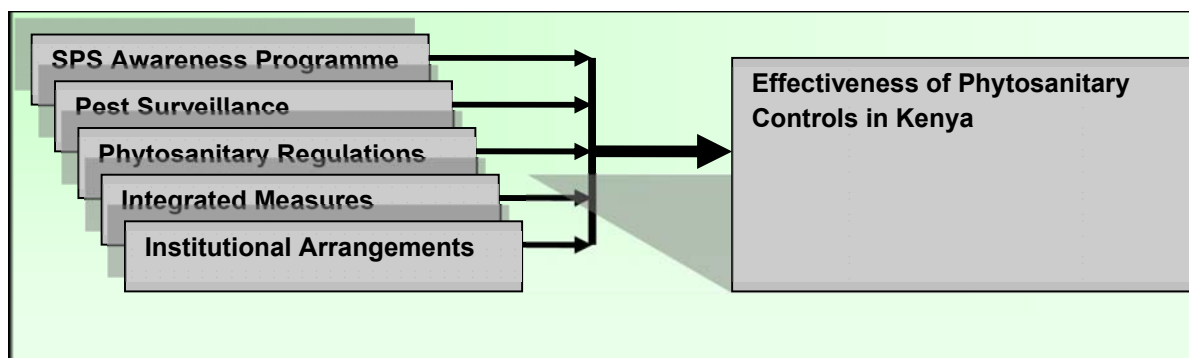


Figure 7-1: Conceptual Framework on Phytosanitary Controls

7.2 Research Method

7.2.1 Description of Method

This research was conducted through survey research, a popular social research method which involves the administration of questionnaires to a sample of respondents selected from some population (Babbie, 2010). A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents. The design used in the study was descriptive survey. The main purpose of a descriptive survey is to give a description of the state of affairs as it exists (Kombo & Tromp, 2006).

Descriptive studies are not only restricted to fact findings, but may often result in the formulation of important principles of knowledge and solution to significant problems (Kerlinger, 1973). Descriptive survey is a good method for collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2002). Questionnaires have advantages over some other types of surveys in that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys, and often have standardized answers that make it simple to compile data. However, such

standardized answers may frustrate users. Questionnaires are also sharply limited by the fact that respondents must be able to read the questions and respond to them. Thus, for some demographic groups conducting a survey by questionnaire may not be practical.

7.2.2 Practical Validity of the Method

To obtain an overview of private standards addressing the livestock sector, in 2010 FAO circulated a global questionnaire, which was replied by 105 respondents, mostly belonging to governmental organizations, not-for-profit non-governmental organization, business organization (representing several sub-sectors of the food or livestock business), and others (FAO, 2010b). In a study conducted via a questionnaire survey to assess barriers to the adoption of good hygiene practice in small and medium size food manufacturers (Holt & Henson, 2000), the survey utilised both in-depth information on individual business practices and constraints, gained through audit and interview, and a broad appraisal of current practices and constraints obtained via a postal questionnaire.

In yet another study on “Good Practice in SPS-related Technical Cooperation”, Spencer Henson case study projects studied were nominated by donors in response to a request for information on good practice in SPS-related technical cooperation distributed to WTO Members and OECD Development Assistance Committee contact points in January 2008 (Henson & Masakure, 2008). The survey requested information on SPS-related technical cooperation projects through standard questionnaires which could be considered to represent examples of good practice. In a study of Aid for Trade on Tanzania, a questionnaire survey was administered to various donors supporting SPS related activities (Turner, 2008).

In 2007 the Secretariat of the WTO administered a questionnaire survey in preparation for the special workshop on transparency provisions of the SPS Agreement held in October 2007 aimed at enhancing the implementation of transparency obligations and identify best practices for drawing benefits from a transparent system (WTO, 2007). The workshop noted that securing awareness at the political level and among the public at large was a starting point for enhancing the use and usefulness of transparency provisions, and that a WTO member first had to identify SPS transparency issues as a priority, give it the visibility it required as well as the budgetary commitment. It was noted that technical assistance activities offered by the WTO Secretariat would serve as a good opportunity to raise the profile of SPS issues at regional and national levels.

Integrating different risk management measures in a systems approach may have a cumulative effect to achieve the appropriate level of protection against regulated pests. ISPM No. 14 contains guidelines for the development of a systems approach, which integrates measures for pest risk management (FAO, 2002). The rationale is that where an individual measure may not be sufficient, there may be gains in efficacy through a systems approach (Vapnek & Manzella, 2007). This offers more flexible pest risk management, allows for more proportionate response to pest challenges, and shifts more responsibility to producers and traders (Whittle, et al., 2010). The components of systems approaches can be divided into a series of five categories of measures: field and production measures, pre-harvest measures, postharvest measures, inspection and certification measures, and shipping and distribution measures (Podleckis, 2007).

In a study conducted in South Africa to mitigate the phytosanitary threat of *Thaumatotibia leucotreta* (Meyrick) (Lepidoptera: *Tortricidae*) on 'Hass' avocado, a

systems approach was found to be the only feasible way that will mitigate the pest risk. *T. leucotreta* is pest of the avocado, *Persea americana* (Mill.) (*Lauraceae*), and in South Africa it is regarded as a phytosanitary threat (Grové, et al., 2010). Furthermore, inspection and certification as well as shipping and distribution measures could be added. The development and evaluation of a systems approach may use quantitative or qualitative methods (FAO, 2002). In some regions, Systems Approaches have been used for decades. The United States Department of Agriculture (USDA), working with the national plant protection organizations of other countries, has used the systems approach concept to develop quarantine strategies for both the domestic movement and the importation of fruit fly host commodities (USDA, 1997). However, in South East Asia and the majority of developing countries, there are significant conceptual, technical and institutional issues that must be resolved in order to take full advantage of opportunities from Systems Approaches to move beyond compliance with plans imposed by trade partners, to a position of strength for negotiation and evaluation (Whittle, et al., 2010).

7.2.3 Research Location

The researcher collected information from smallholder avocado producers across major avocado producing regions in Kenya. In western region the survey targeted the following sub-regions: Trans Nzoia, Uasin Gishu, Mt. Elgon, Bungoma, Kakamega, Kisii and Nyamira. In central region, the survey was carried out in the wider Kiambu, Thika, Kandara, Maragua, Murang'a, Nyeri and Kirinyaga sub-regions. In eastern and coastal region, the study was conducted in the wider Meru North, Meru Central, Meru South, Embu, Makueni, Machakos, Wundanyi, Taita and Taveta sub-regions.

7.2.4 Study Population

The study population comprised an estimated 100,000 small-holder avocado producers in Kenya. The subjects of the study were drawn from the selected regions and districts and from a selection of households in each selected district. The respondents in the survey were smallholder producers involved in avocado production. In addition key informants were purposely identified for their apparent understanding of SPS matters, in particular the ban by South Africa on avocado from Kenya. In-depth interviews were conducted with selected informants for qualitative data collection.

7.2.5 Sampling Techniques

A sample size of 600 smallholder avocado producers was selected as respondents for purposes of the survey. The sample was drawn from all avocado production areas in Kenya in proportion to quantities of avocado produced in 2007 (the year the South African import ban was imposed on the Kenyan avocado due to *B. invadens*). Both probability and non-probability sampling designs were used in this study. According to Kombo and Tromp (2006) probability sampling also enables the researcher to generalize to the larger population and make inferences.

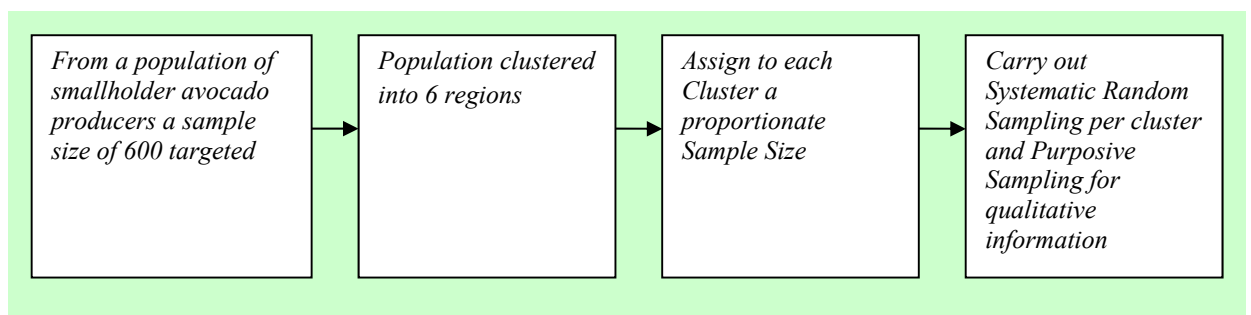


Figure 7-2: Sampling Techniques

As the study population was spread across a wide geographical region, the study population was divided into clusters based on geographical regions and then systematic sampling carried out with a random start for each cluster. The different regions were considered strata with more or less homogeneous groups. Random and systematic sampling was then conducted in each stratum. Non-probability sampling was also used in order to maximize the scope or range of variation of the study by purposely selecting people believed to have an understanding of SPS matters and the fruit fly problem.

The researcher randomly selected respondents from a cross section of smallholder avocado producers (study population). The researcher targeted at least 30 subjects in each group for co-relational and descriptive research (Kombo & Tromp, 2006), as well as to have protection against chance error. As sampling biases arise due to the tendencies to favour selection of units that have particular characteristics, the sampling plan in below was used during sampling.

Table 7-1: Sampling Frame

Region/ Province	Specific survey locations/counties	Avocado Production in 2007 before ban (metric tons)	Avocado Production in 2010 (metric tons)	Number of respondents (based on 2007 Production)
Western	Bungoma, Kakamega	7319	7250	47
Nyanza	Kisii and Nyamira	18668	38157	120
Rift Valley	Trans-Nzoia, Uasin Gishu	12792	8856	82
Central	Kiambu, Murang'a, Nyeri, and Kirinyaga	31343	43748	201
Eastern	Meru, Embu, Makueni, and Machakos	21866	13716	140
Coast	Taveta, Taita	1612	1334	10
TOTALS		93600	113061	600

7.2.6 Research Instruments

This study employed the use of a closed-ended questionnaire administered to 600 small-holder producers located in the main avocado producing regions in Kenya. In addition, a checklist of questions was used to gather detailed information from selected key informants for in-depth analysis. Focus group discussions and in-depth interviews using semi-structured checklists were also held.

7.2.7 Data Collection Procedure

Data collection was conducted stepwise as follows:

Step 1: Formulation/ design of questionnaire: The questionnaire was designed to be closed ended, and capturing relevant variables in accordance with the conceptual framework which included phytosanitary awareness programmes, pest surveillance programmes, regulatory programmes, institutional arrangements and integrated measures.

Step 2: Recruitment of enumerators: Four enumerators were recruited to gather and record information from small-holder producers, as some would not have been able to read and answer questions on their own. The enumerators were trained to have common understanding of the questionnaire. In addition they received detailed instructions from the researcher on data collection approaches; interviewing skills; filling questionnaire and on how to handle anticipated challenges.

Step 3: Conducting a pilot survey to test the questionnaire: A practical training of enumerators was conducted while using the questionnaire on pilot basis. The questionnaire was then reviewed taking into consideration any issues that arose during the pilot exercise.

Step 4: Acquiring a research permit from relevant authorities: Permission was sought from the Kenya National Bureau of Statistics (KNBS), National Council for Science and

Technology (NCST) and other relevant offices to conduct a statistical research among the small-holder producers. In this manner, the risk of colliding with authorities during the actual survey will be minimized. The authorities will be informed that the survey is for academic purposes only.

Step 5: Making prior arrangements to contact relevant persons in the field book appointments: Formal letters were written to relevant government offices that deal with small-holder producers. At the same time, consent letters were sent from relevant authorities, and respondents also asked to consent to the study by signing on the questionnaire.

Step 6: Conducting the survey: This involved sending out a team of enumerators to administer the questionnaire. The enumerators interviewed respondents using the questionnaire clearly outlining the response options, but without providing leading answers to the respondents. Enumerators visited the respondents in person.

7.2.8 Data Organization

Data was processed after collection and before carrying out analysis. This data “cleaning” was meant to correct problems that may have been identified in the raw data. A coding scheme for data was formulated after correcting any errors that may influence data analysis. The purpose of the coding process was to create codes and scales from the responses in order to allow for data summary and analysis in various ways. Codes were assigned to each answer or response, specifying how other responses would be handled. Care was taken to ensure that there were no missing answers which would otherwise make the coding scheme difficult to apply.

7.2.9 Data Storage

After coding the data, short time storage was necessary before data analysis. Data in the form of spreadsheet (MS Excel) was stored in an electronic storage system. This is because some form of analysis was necessary at least at the early stages. Both the SPSS and “R” software were used because these applications carry out a wide range of statistical analyses. Apart from supporting data summarization and basic inferential statistics, they can support advanced inferential techniques, including multivariate methods. The system also offers advance data manipulation including sophisticated data description, and a range of various statistical tests.

7.2.10 Data Analysis

The analysis focused on characterisation of Kenyan smallholders involved in production of export avocado and those producing solely for the domestic market with regard to effectiveness of phytosanitary controls.

7.3 Results and Discussion

7.3.1 Description of Smallholder Avocado Production and Marketing System

7.3.1.1 Demographic Characterization of Avocado Production in Kenya

The study targeted 600 small scale avocado smallholders (growers) in Kenya to whom semi-structured questionnaires were administered. 598 questionnaires were adequately completed and returned, representing 100 per cent response rate. Data findings on the respondents' demographics indicate that 323 (54 per cent) of the sampled population were male while 275 (46 per cent) were female. The study covered 6 out of 8 provinces representing 19 counties spread across the country, although the sampling frame used was designed following the old provincial administrative boundaries now replaced by counties under the new Constitution of Kenya 2010.

In terms of geographical distribution of the producer groups, survey results as shown in *Figure 7-3* indicate that 71.0 per cent of the registered producer groups were from Murang'a County, 16.1 per cent were from Nandi County, 6.5 per cent were from Machakos County, 3.2 per cent were from Uasin Gishu County, 1.6 per cent was from Kiambu and 1.6 per cent from Bungoma County. With only 6 counties having organised smallholder producer groups, there are likely challenges of promoting good agricultural practices among smallholders in Kenya. Pest control programmes, particularly those calling for area-wide coordinated control strategies (such as for fruit-fly) may be difficult to achieve.

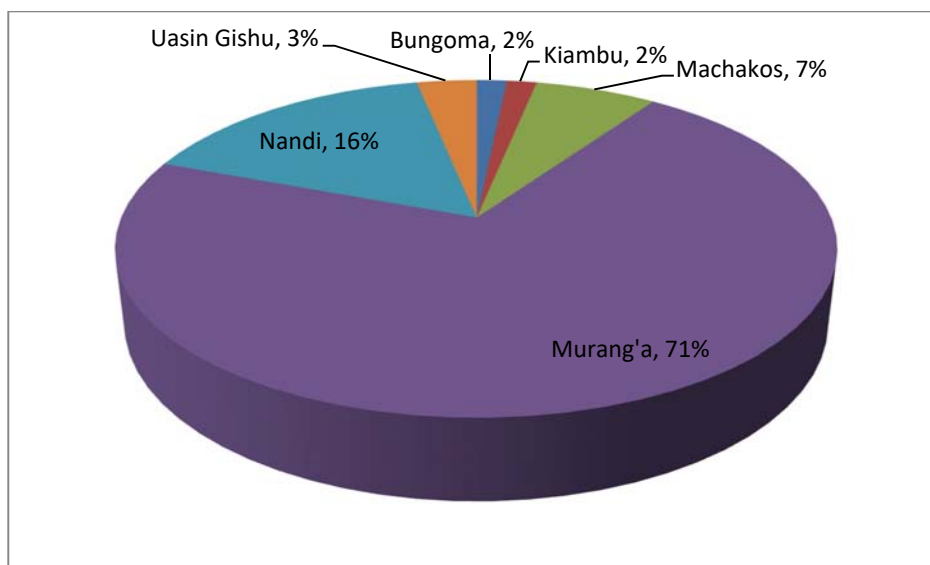


Figure 7-3: Distribution of Smallholder Avocado Producer Groups

The study also assessed the number of avocado trees owned by smallholder producers. Data findings presented in *Table 7-2* show that: 50.9 per cent of the respondents' farms had 5 avocado trees or less, 24.0 per cent had 6 to 10 trees, 9.5 per cent had 11 to 15 trees, 4.5 per cent had 16 to 20 trees and 11.1 per cent had more than 20 trees. This shows that three quartiles of the sampled population had at most 10 trees. The results show that of the farmers who grew avocado trees in excess of 20 trees, 21.4 per cent were from Kisii County, 16.1 per cent were from Murang'a, 8.4 per cent were from Taita Taveta and 7.4 per cent were from Meru County. This implies that smallholder producers with over 20 avocado trees do not necessarily produce for export markets, but targeting domestic markets in western and coastal regions. In fact, 53.7 per cent of smallholders grew local varieties as variety of first choice and 67 per cent as second choice.

With approximately 75 per cent of smallholder producers owning less than 10 trees, there is a risk that individual production systems will differ widely across farms and production regions. There is need to develop effective mechanisms to coordinate production and

service provision to smallholder producers. There is also a risk of weak or inefficient system of service provision to producers. Service providers will need to develop effective extension messages and communication channels that will help producers follow good agricultural practices. For efficient service provision and information exchange it remains necessary to come up with organised producer groups in all smallholder production.

Table 7-2: Number of Avocado Trees on the Farm

Number of Trees	Frequency	Percentage
5 Trees or Less	304	50.9
6 to 10 Trees	143	24.0
11 to 15 Trees	57	9.5
16 to 20 Trees	27	4.5
More than 20 Trees	66	11.1
Total	597	100.0

Data was collected on the avocado varieties grown by the smallholders. Results summarised in *Table 7-3* show that 53.7 per cent of the respondents grew local varieties, 26.6 per cent grew *Hass* and 18.2 per cent grew *Fuerte* as their first variety. Only 178 of the 598 grew second varieties of which 61.2 per cent grew *Fuerte*, 37.6 per cent grew local varieties, 0.6 per cent grew *Puebla* and *Hass*. Moreover, 24 of the 598 respondents grew third varieties of avocado of which 58.3 per cent grew local varieties, 37.5 per cent grew *Pinkerton* and 4.2 per cent grew *Puebla*. The survey established that *Hass* and *Fuerte* varieties are leading varieties grown for export.

The findings show that while avocado production is growing in importance across the country, varieties grown are not necessarily for export market. A number of smallholder producers have a mix of varieties on their farms.

Table 7-3: Avocado Varieties Grown

Variety	Variety 1	Variety 2	Variety 3
Hass	157(26.6)	1(0.6)	0(0)
Fuerte	109(18.2)	109(61.2)	0(0)
Puebla	1(0.2)	1(0.6)	1(4.2)
Pinkerton	2(0.3)	0(0)	9(37.5)
Local	321(53.7)	67(37.6)	14(58.3)
Total	590(100)	178(100)	24(100)

Interventions in promoting good agricultural practices or compliance with export-oriented production standards may not yield much positive outcomes if they are not targeting varieties produced for other uses other than for direct exports. These demographic findings reveal avocado productivity challenges and the need to develop strong governance structures for SPS control and service delivery along the avocado value chain in Kenya.

7.3.1.2 SPS related Challenges in Smallholder Avocado Production in Kenya

The study then sought data on the main avocado production challenges in Kenya. *Table 7-4* shows that 95.2 per cent of the respondents' main challenge in avocado production was related to pests and diseases, and 4.5 per cent faced post-harvest losses.

Table 7-4: Main Avocado Production Challenge

	First Challenge	Second Challenge
Pest and Diseases	553(95.2)	6(15.4)
Cost of Inputs	2(0.3)	0(0)
Post-Harvest Losses	26(4.5)	28(71.8)
Low Prices	0(0)	5(12.8)
Total	581(100)	39(100)

Rating the challenge, the 39 of the 598 respondents revealed that another (second) challenge they faced was: 71.8 per cent of the respondents faced post-harvest losses, 12.8

per cent faced low prices, 10.3 per cent faced other pest and diseases, and 5.1 per cent faced pest problems, notably fruit-fly.

The main production challenge faced by smallholder avocado producers across all counties is pests and diseases, which also causes poor quality of fruit. Only about 0.3 percent of respondents found cost of inputs a challenge. Smallholder producers in western Kenya (Bungoma, Busia, Kakamega and Vihiga) experienced 27-80 post-harvest losses, which is significantly high. The highly ranked pest and disease challenge on majority of smallholder farms beckons SPS related concerns at primary production level. Effective pest and disease control strategies must be developed and implemented effectively to boost the quality of fruits and to ensure that presence of such pests and diseases does not pose a phytosanitary risk in international trade.

7.3.1.3 Avocado Marketing Channels

The study sought to establish the proportion of smallholder producers supplying avocado directly to exporters and those selling through diverse alternative market outlets, in order to gain an understanding of how SPS controls and services are administered at primary production level for the two categories. As summarised in *Table 7-5* below, only about 3.2 per cent of smallholder avocado producers supplied directly to avocado exporters. The results further show that of those who were registered out-growers, 84.2 per cent were from Murang'a County, while Embu, Kiambu and Nandi Counties each represented 5.3 per cent of registered out-growers of exporters. All producer groups contacted during the survey supplied their fruit directly to exporters, but only two exporting companies were identified as working with organised smallholder producer groups in a contractual arrangement.

With over 96% of avocado from smallholder producers targeting domestic market outlets, opportunities exist in upgrading the Kenyan production and marketing systems for avocado. If good agricultural practices and best practices in marketing are implemented, as demonstrated in the case of Murang'a County, smallholder producers would find it easier to comply with standards required to access international markets as well. However, failure to improve the domestic marketing system may impact negatively on adoption of standards and best practices needed accessing export markets.

Table 7-5: Characterisation of Avocado Production in Kenya

County	Targeting domestic market	Out-grower of exporter
Bungoma	2.3%	0%
Busia	0.9%	0%
Embu	4.2%	5.3%
Kakamega	0.7%	0%
Kiambu	5.2%	5.3%
Kirinyaga East	3.7%	0%
Kisii	22.3%	0%
Machakos	4.5%	0%
Makueni	3.0%	0%
Marakwet	0.2%	0%
Meru	7.7%	0%
Murang'a	14.1%	84.2%
Nandi	5.6%	5.3%
Nyeri	3.5%	0%
Taita Taveta	8.7%	0%
Tharaka Nithi	2.3%	0%
Trans Nzoia	3.5%	0%
Uasin Gishu	3.1%	0%
Vihiga	4.9%	0%
% of Total	96.8%	3.2%
Total	100.0%	100.0%

As indicated in *Figure 7-4* below, data findings on the main market outlet for avocado reveals that 90.6 per cent of respondents sold their avocado produce to brokers/middlemen, 5.9 per cent directly to at the marketplace, 2.7 per cent sold directly

to fresh produce exporter, 0.5 per cent sold to wholesale markets and 0.3 per cent sold directly to processors.

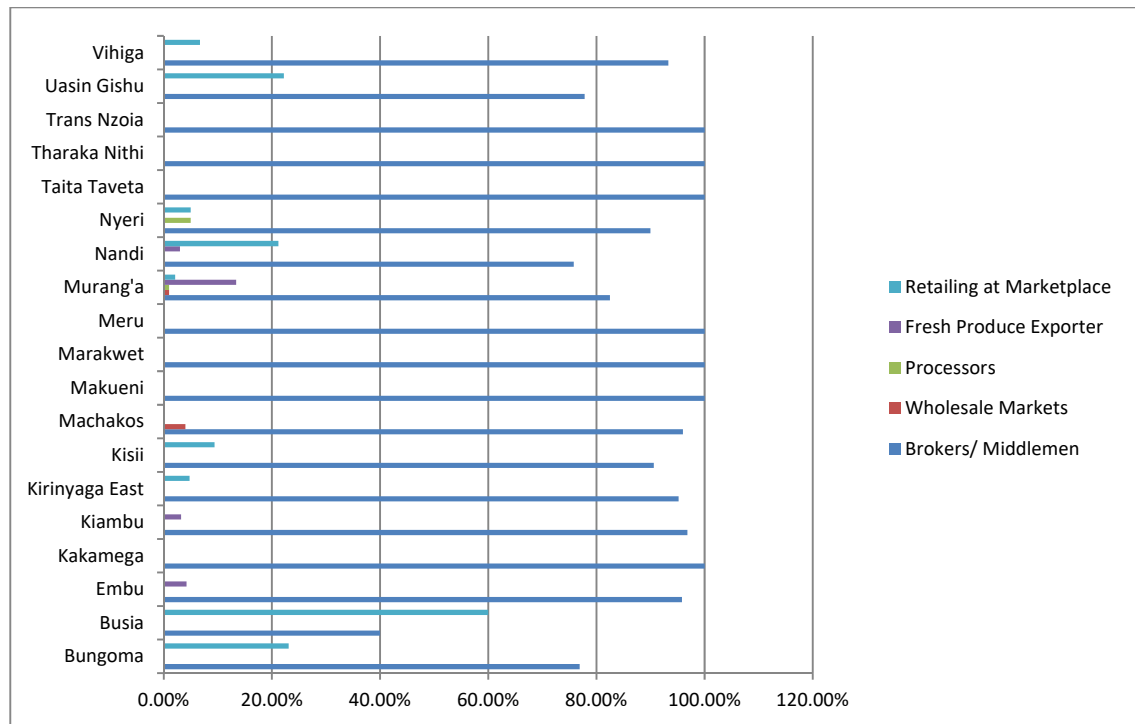


Figure 7-4: Main Market Outlets for Avocado from smallholder Producers in Kenya

These findings show that majority of the farmers use brokers or middlemen as their main market outlet. Of those who sell their produce to fresh produce exporters, 13.4 per cent were famers from Murang’a County, 4.2 per cent were from Embu, 3.2 per cent were from Kiambu County. Thus, farmers coming from regions growing export varieties sold to exporters in Nairobi while those far from the city utilised brokers as their link to formal markets. In western Kenya, there is a growing significant retail market particularly in Busia, Bungoma, Uasin Gishu, Nandi, Vihiga and Kisii Counties.

Intermediaries (brokers) remain an important marketing option outlet for avocado from smallholder producers. These brokers pose a major risk of non-compliance with requisite trade standards due to poor traceability. However, this challenge presents an opportunity

to develop an effective traceability and food safety management system for supply of avocados from smallholder producers. Government and other SPS service providers should develop programmes that engage brokers in maintaining traceability and other requirements that will ensure that food safety and phytosanitary risks in avocado are addressed during marketing of produce.

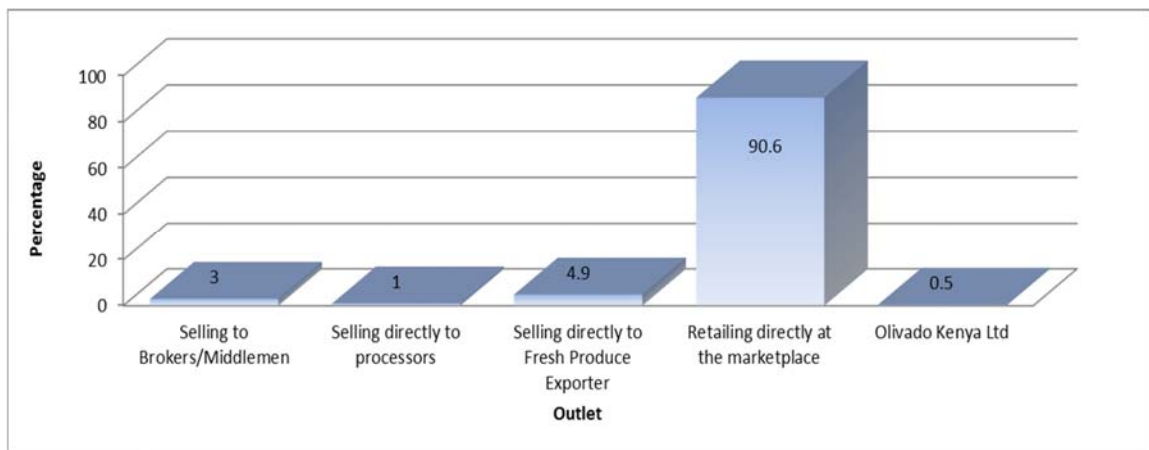


Figure 7-5: Main Market Outlet for Avocado

Figure 7-5 presents the data findings on the second market outlet for respondents' avocado from which it was established that 90.6 per cent of the respondents sold directly at the marketplace, 4.9 per cent sold directly to fresh produce exporters, 3 per cent sold to brokers/ middlemen, 1 per cent sold to processors and 0.5% sold to processors. Thus, from the foregoing, as a second option, farmers sold directly at the market places. The domestic market is gaining much popularity as an alternative to using brokers. These markets may include open county markets, the supermarkets, and retailing at shopping centres, among others. Opportunities exist to build robust traceability systems and controls on food safety and phytosanitary aspects. One such opportunity is to register all retail markets and implement controls along their supply chain. SPS awareness programmes are also necessary at this point in order to ensure that produce marketed does

not pose food safety problems to users or spread pests and diseases from one region to the other.

7.3.2 SPS Awareness Programme

The findings in *Table 7-6* below show that awareness on the avocado ban is among farmers located in avocado export zones.

Table 7-6: County Awareness of South Africa's Ban on Avocado Imports from Kenya

County	No	Yes
Bungoma	100.0%	0%
Busia	100.0%	0%
Embu	96.0%	4.0%
Kakamega	100.0%	0%
Kiambu	93.5%	6.5%
Kirinyaga	76.2%	23.8%
Kisii	100.0%	0%
Machakos	79.2%	20.8%
Makueni	100.0%	0%
Marakwet	100.0%	0%
Meru	97.7%	2.3%
Murang'a	65.6%	34.4%
Nandi	100.0%	0%
Nyeri	90.0%	10.0%
Taita Taveta	98.0%	2.0%
Tharaka Nithi	92.3%	7.7%
Transzoia	100.0%	0%
Tranzoia	100.0%	0%
Uasin Gishu	83.3%	16.7%
Vihiga	100.0%	0%
Total	90.9%	9.1%

The respondents were asked to indicate whether they were aware or information about South Africa's import ban on avocado from Kenya had been conveyed to them. The survey reveals that only 9.08% of the respondents were aware of the information on South Africa's import ban on avocados from Kenya. 34.4% of farmers from Murang'a County were aware of the import ban, 23.8% of farmers from Kirinyaga County were aware of the ban, 20.8% of farmers from Machakos were aware, 16.7% of those from

Uasin Gishu were aware. This implies that the majority of smallholder avocado producers are not aware of the ban, save for those in avocado export zones –Murang’a, Kirinyaga, Machakos, Nyeri, and Kiambu.

Among smallholders who had information on the ban, 58.2% got the information through buyers of their produce, 12.7% through government extension personnel, 12.7% through electronic and print media, 14.5% through public meetings and forums, and from 1.8% from brokers as summarised in *Table 7-7* below.

Table 7-7: County versus Source of Information

	Exporters of Produce	Extension Personnel	Electronic & Print Media	Public Forums	Brokers
Embu	100.0%	0%	0%	0%	0%
Kiambu	0%	33.3%	33.3%	0%	33.3%
Kirinyaga	40.0%	40.0%	20.0%	0%	0%
Machakos	60.0%	0%	40.0%	0%	0%
Meru	0%	0%	100.0%	0%	0%
Murang'a	69.7%	9.1%	6.1%	15.2%	0%
Nyeri	0%	0%	0%	100.0%	0%
Taita Taveta	0%	100.0%	0%	0%	0%
Tharaka Nithi	0%	0%	0%	100.0%	0%
Uasin Gishu	100.0%	0%	0%		0%
Total	58.2%	12.7%	12.7%	14.5%	1.8%

This shows that exporters are a useful source of SPS related information to producers as they provide a direct link between smallholders producing for exports and the importing countries. Of those who got information on South Africa’s import ban from buyers of produce, 69.7% were from Murang'a, 60.0% were from Machakos and 40.0% were from Kirinyaga –counties producing avocado for export. Government led SPS awareness through extension services and public forums could be used for domestic SPS controls necessary to manage spread of SPS risks across the country.

The survey established that majority smallholder avocado producers, especially those producing for domestic market, are not aware of any SPS awareness programmes, including on fruit-fly. At least 61.7% of the smallholder avocado producers are not aware of any fruit-fly control programme although some farms are used by regulatory and research organisations for gathering fruit-fly information through traps.

Majority of smallholder avocado producers are not aware of SPS concerns in avocado, including South Africa's ban on importation of avocado from Kenya due to the invasive fruit-fly existence and distribution in the country. This poses a challenge to the Kenyan avocado production system as most produce destined for exports is sourced from smallholders. Direct involvement of smallholder producers in SPS control programmes on their farms creates more awareness than printed information in books, newspapers or signage in cases where SPS awareness programmes were implemented.

SPS Awareness among smallholder avocado producers is very low. This poses a challenge to the Kenyan avocado production system as most produce destined for exports is sourced from smallholders. Government should develop SPS awareness programmes for smallholders and work jointly with stakeholders to disseminate such information, particularly through exporters (buyers of produce from smallholders) and government extension workers. Direct involvement of smallholder producers in SPS control programmes on their farms creates more awareness than printed information in books, newspapers or signage in cases where SPS awareness programmes were implemented.

7.3.3 Pest Surveillance Programmes

On pest surveillance programmes, the study focused on activities the government is conducting in order to address the fruit-fly problem. 83.0% of the smallholder avocado

producers stated that there is no pest surveillance activity that the government is conducting in order to address the fruit-fly trapping; 16.3% stated that such programmes exist but inadequate; and 0.5% of the small-holder avocado producers felt that such Government programmes were adequate. While trapping should not necessarily be on each farm, the survey established that fruit-fly trapping is skewed towards regions producing avocado for exports. Of those who indicated that Government adequately conducted surveillance through fruit-fly trapping, 5.0% were from Nyeri County, 4.0% were from Embu County and 1.0% were from Murang'a County.

Table 7-8: Government Fruit-fly trapping for Surveillance

County	None at All	Not Adequate	Adequate	I Don't Know
Bungoma	85.7%	14.3%	0%	0%
Busia	100.0%	0%	0%	0%
Embu	92.0%	8.0%	0%	0%
Kakamega	100.0%	0%	0%	0%
Kiambu	96.8%	0%	0%	3.2%
Kirinyaga	100.0%	0%	0%	0%
Kisii	83.6%	16.4%	0%	0%
Machakos	41.7%	58.3%	0%	0%
Makueni	100.0%	0%	0%	0%
Marakwet	0%	100.0%	0%	0%
Meru	97.7%	2.3%	0%	0%
Murang'a	85.4%	13.5%	1.0%	0%
Nandi	36.4%	63.6%	0%	0%
Nyeri	90.0%	5.0%	5.0%	0%
Taita Taveta	98.0%	2.0%	0%	0%
Tharaka Nithi	76.9%	23.1%	0%	0%
Trans Nzoia	89.5%	10.5%	0%	0%
Uasin Gishu	61.1%	38.9%	0%	0%
Vihiga	96.8%	3.2%	0%	0%
Total	84.2%	15.3%	.3%	.2%

Table 7-8 above presents the findings on adequacy or otherwise of Government conducting surveillance through fruit sampling. 84.2% of the producers felt that the Government had done nothing regarding surveillance through fruit sampling; while

15.3% felt that what the government has done is not adequate; while, 0.3% felt that what the government had done is adequate. Of those who noted that the Government had adequately conducted surveillance through fruit sampling, 5% were from Nyeri County and 1.0% from Murang'a County, a zone producing avocado for export. This represents a very insignificant SPS surveillance effort on the part of the authorities in addressing the fruit-fly menace, as it is difficult to establish the type and spread of fruit-fly species on avocado across the country. Furthermore, findings reveal inadequacies of Government trained experts (entomologists) to assist producers identify fruit flies and other pests on the farm.

The study sought to understand perceptions by smallholder producers on support of Government entomologists in pest identification and management. *Table 7-9* below summarises smallholder perceptions on services from Government entomologists.

Table 7-9: Assistance from Government Entomologists to Identify Fruit Flies

County	None at All	Not Adequate	Adequate	I don't know
Bungoma	85.7%	14.3%	0%	0%
Busia	100.0%	0%	0%	0%
Embu	92.0%	4.0%	4.0%	0%
Kakamega	100.0%	0%	0%	0%
Kiambu	93.5%	0%	3.2%	3.2%
Kirinyaga	100.0%	0%	0%	0%
Kisii	83.6%	16.4%	0%	0%
Machakos	41.7%	58.3%	0%	0%
Makueni	100.0%	0%	0%	0%
Marakwet	0%	100.0%	0%	0%
Meru	79.5%	20.5%	0%	0%
Murang'a	86.5%	12.5%	1.0%	0%
Nandi	36.4%	63.6%	0%	0%
Nyeri	90.0%	0%	10.0%	0%
Taita Taveta	98.0%	2.0%	0%	0%
Tharaka Nithi	76.9%	23.1%	0%	0%
Trans Nzoia	89.5%	10.5%	0%	0%
Uasin Gishu	61.1%	38.9%	0%	0%
Vihiga	96.8%	3.2%	0%	0%
Total	82.9%	16.1%	.8%	.2%

Table 7-10 below provides a summary on whether or not a person with defined authority and responsibility from government supervises producers at farm level on plant health in general and phytosanitary matters in particular. In general, smallholder producers expressed general dissatisfaction on phytosanitary services they receive at farm level. 83.4% of respondents did not receive any supervisory support from Government, while 15.8% felt that authorised government supervisors, though exist, are not done adequately. Only 0.7% of respondents stated that authorised government officers ensured phytosanitary controls had been adequately implemented appropriately, and 10.0% of which from Nyeri County, 3.2% were from Kiambu, and 1.0% were from Murang'a County.

Table 7-10: Government Supervision on Phytosanitary Aspects at farm level

	None at All	Not Adequate	Adequate	I Don't Know
Bungoma	85.7%	14.3%	0%	0%
Busia	100.0%	0%	0%	0%
Embu	92.0%	8.0%	0%	0%
Kakamega	100.0%	0%	0%	0%
Kiambu	83.9%	9.7%	3.2%	3.2%
Kirinyaga	100.0%	0%	0%	0%
Kisii	83.6%	16.4%	0%	0%
Machakos	41.7%	58.3%	0%	0%
Makueni	100.0%	0%	0%	0%
Marakwet	0%	100.0%	0%	0%
Meru	95.5%	4.5%	0%	0%
Murang'a	85.4%	13.5%	1.0%	0%
Nandi	36.4%	63.6%	0%	0%
Nyeri	90.0%	0%	10.0%	0%
Taita Taveta	98.0%	2.0%	0%	0%
Tharaka Nithi	76.9%	23.1%	0%	0%
Trans Nzoia	89.5%	10.5%	0%	0%
Uasin Gishu	61.1%	38.9%	0%	0%
Vihiga	96.8%	3.2%	0%	0%
Total	83.4%	15.8%	.7%	.2%

Only 0.7% of respondents stated that authorised government officers ensured phytosanitary controls had been adequately implemented appropriately, and 10.0% of

which from Nyeri County, 3.2% were from Kiambu, and 1.0% were from Murang'a County. This demonstrates a bias on phytosanitary controls towards regions producing avocado for exports. This includes farmer participation in phytosanitary control activities jointly with Government on pest surveillance. 87.52% of the respondents had never participated in any pest surveillance activity organized by the government while 12.48% (or 73 out of 598) had participated in some way in pest surveillance as shown in *Table 7-11* below.

The respondents were asked to indicate how they participated in pest surveillance activities. 71.2% indicated they participated jointly with other farmers to report any pest problems; while 24.7% carried out scouting activities for fruit flies on their farms. 2.7% participated through fruit-fly traps placed by the Government in their avocado fields and, 1.4% of the participated by letting the Government sample avocado from their fields.

Table 7-11: Farmer Participation in Pest Surveillance

Participation	Frequency	Percentage
Government has place fruit-fly traps in my avocado	2	2.7
Government samples avocado fruit from my farm	1	1.4
I carry out scouting activities for fruit-flies on my farm	18	24.7
Participate jointly with farmers to report any pest problems	52	71.2
Total	73	100.0

In summary, over 80 per cent of the respondents countrywide were not aware of any Government pest surveillance activities in avocado. Although some surveillance activities have been carried out in regions where avocado is produced for exports (Embu, Murang'a and Nyeri Counties) they are inadequate as less than 5 per cent of respondents in these

regions expressed having had assistance from a trained government entomologist or extension officer. Some farmers, however, carry out scouting of pests for pest control purposes at individual farm level. Considering the rising importance of SPS issues in trade, the government needs to enhance pest surveillance activities not only in regions producing crop for exports, but across the country to address establishment and spread of pests of trade importance.

7.3.4 Pest Management Strategies

This section summarises the adequacy of pest management strategies put in place by the government and individual farmers to produce clean produce free of pest risks. The respondents were asked to indicate whether the support they received from the Government was adequate to implement the pest management strategies on their farms. As shown in *Table 7-12* below, on implementation of cultural control strategies for pest management on the farm, 74.8% of respondents indicated they received no support, while 22.7% stated that the support they received was inadequate to implement cultural control strategies for pest management on the farm.

Table 7-12: Support for On-farm Pest Management Strategies

Pest Management Strategy	No Support	Inadequate	Adequate	More than Adequate	I Don't Know
I implement cultural control strategies for pest management on the farm	74.8	22.7	2.4	0.0	.2
I implement physical control strategies for pest management on the farm	76.1	22.8	1.0	0.0	.2
I implement biological control strategies for pest management on the farm	79.3	20.2	.3	0.0	.2
I implement chemical control strategies for pest management on the farm	76.2	22.3	1.3	0.0	.2

On implementation of biological control strategies for pest management on the farm, 79.3% stated that they receive no support, 20.2% stated that the implementation is inadequate while 0.3% stated that the implementation is adequate. On implementation of chemical control strategies for pest management on the farm, 76.2% stated that they receive no support, 22.3% stated that the support they receive is inadequate while 1.3% stated that they receive adequate support. These findings show that smallholder producers did not receive adequate support in addressing pest management in avocado at farm level. Thus, the farmers have been unable to implement cultural, physical, biological and chemical control of pest on their farms.

The respondents were asked to indicate the cultural control measures they apply to prevent fruit flies on their farms. *Table 7-12* illustrates that 76.7 per cent use early harvesting, 11.8% use stripping and destruction of mature and fallen fruit, 10.4 per cent prune before the fruiting period and 0.9 per cent discourage intercropping with fruit-fly host plants. Thus, majority of avocado smallholders implementing cultural controls on the farm adopted early harvesting of the fruits before ripening, a practice that makes it difficult for fruit-flies to oviposit on harvested fruit destined for market. Also, general field hygiene is practised through pruning of the plants before fruiting, and by removal of fallen fruit, as shown in *Figure 7-6* below. Such practices could be effective and cheap if integrated into an area-wide pest control strategy.

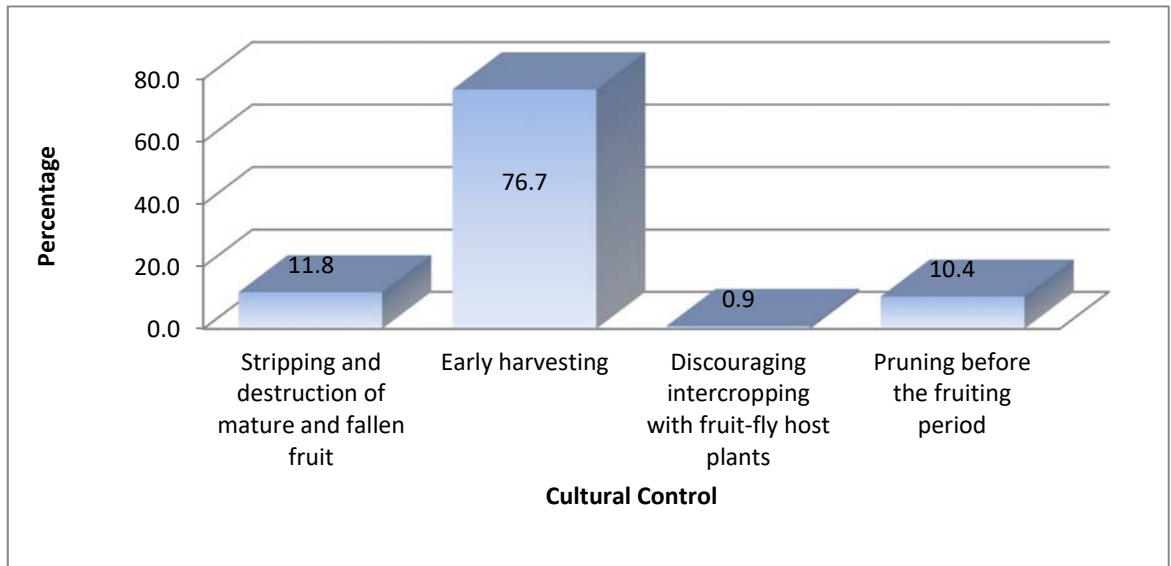


Figure 7-6: Cultural Control Measures

The respondents were asked to indicate the physical control measures they apply to reduce fruit fly populations. As shown in

Table 7-13 below, 68 percent of respondents who had adopted the use of physical control measures stated that the affected fruit was collected and destroyed, 17.6 per cent stated that fruits are placed in bags (fruit bagging) and 13.8 per cent stated that fruit-fly host material is disposed of in appropriate disposal bag. These practices integrate well with cultural control strategies.

Table 7-13: Physical Control Measures

Physical Control Measures	Frequency	Percentage
Fruit are place in bags (fruit bagging)	28	16.0
Fruit-fly host material is disposed of in appropriate disposal bag	23	13.1
Affected fruit is collected and destroyed	124	70.9
Total	175	100.0

The study sought to determine the biological and chemical control measures that the smallholders apply at farm level. As shown in *Table 7-14* only 2 out of 598 respondents indicated they used biological control measures –sterile insect technique (SIT) and natural enemies. The survey also revealed that smallholder avocado producers rarely use chemical control methods, with 8.9 per cent having occasionally having sprayed their crop or used selective insecticide bait as part of government driven research activity.

Table 7-14: Biological and Chemical Control Measure

		Frequency	Percentage
Biological Control	Use of sterile insect technique (SIT)	1	50.0
	Use of natural enemies	1	50.0
Chemical Control	Selective insecticide Bait	5	9.4
	Aerial and ground spraying	48	90.6

Finally, respondents were asked to indicate the post-harvest pest control techniques they employed on-farm to prevent fruit flies. As illustrated in *Figure 7-7* below, 69.0 per cent of the respondents harvest and sell avocado fruit when it is still hard/firm, and 31.0 per cent keep ripe fruit in bags to avoid pest infestation. The findings reveal that no smallholder: monitors and corrects pest infestations in the packing and storage areas; or, uses post-harvest treatments such as waxes, biocides and plant protection products after harvest.

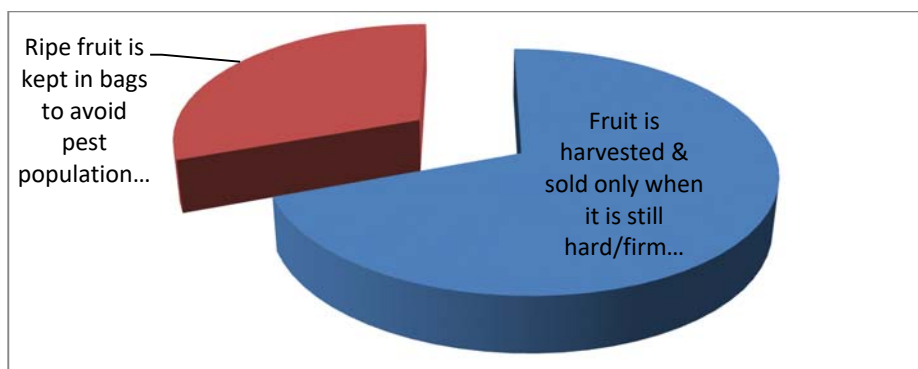


Figure 7-7: Post-Harvest Pest Control Techniques

In summary, smallholder avocado producers in Kenya receive minimal support in pest management at farm level. Nevertheless, best practices such as cultural and physical control measures are implemented by producers. Chemical and biological controls are seldom used, save where governmental or research experimental activities have been located. Early harvesting of fruit targeting distant markets inadvertently helps escape any pest infestations on fruits which are harvested when still hard. In fact, 69 per cent of fruit is harvested and sold when still firm, eliminating the risk of fruit-fly oviposition. However, considering that at least 96 percent of all avocado fruit produced on smallholder farms is sold in domestic market outlets, storage of ripe fruit on-farm and in market stores is common and could serve as a good avenue for fruit-fly infestation and oviposition.

7.3.5 Phytosanitary Regulations

This section presents perceptions and likely impacts of regulations the regulations that Government could introduce for effective phytosanitary controls at primary production level. As shown in *Table 7-15* below smallholders were strongly in favour of regulating on-farm activities (77.5 per cent); regulating providers of farm inputs (77.1 per cent);

regulating providers of information and advisory services (77.0 per cent); controlling movement of produce through movement permits (77.1 per cent); regulating activities of middlemen and other buyers of produce (77.4 per cent). The findings show over 99 per cent of respondents favour introduction of phytosanitary regulations to control fruit-flies and other pests at farm level.

Table 7-15: Phytosanitary Regulations at Farm Level

	Strongly in Favour of	In Favour of	Neither in Favour nor Against	Against	Strongly Against	Mean	STDEV
Regulating on-farm activities	77.5	20.8	.9	.7	.2	4.75	0.517
Regulating providers of farm inputs	77.1	21.1	1.0	.9	0.0	4.74	0.513
Regulating providers of information and advisory services	77.0	21.1	1.0	.9	0.0	4.74	0.513
Controlling movement of produce through movement permits	77.1	21.1	1.0	.9	0.0	4.74	0.513
Regulating activities of middlemen and other buyers of produce	77.4	20.5	1.2	.9	0.0	4.74	0.515

The survey sought to determine which phytosanitary regulations would achieve the highest fruit-fly control from a farmer perspective. The findings, as summarised in *Table 7-16* show smallholders believed that each of the proposed phytosanitary controls would be effective, and so were in agreement with introduction of such regulations as: regulating on-farm activities, providers of farm inputs, providers of information and advisory services, controlling movement of produce through movement permits, and activities of middlemen and other buyers of produce would reduce and control fruit-fly control. In fact, the weighted mean results (2.96 and 2.97) point to such agreement.

Table 7-16: Farmer perception on Regulations Achieving High Fruit-Fly Control

Regulations	Agree	Neutral	Disagree	Mean	STDEV
Regulating on-farm activities	97.6	1.9	.5	2.97	0.196
Regulating providers of farm inputs	97.3	1.9	.9	2.96	0.228
Regulating providers of information and advisory services	97.6	1.9	.5	2.97	0.196
Controlling movement of produce through movement permits	97.3	1.9	.9	2.96	0.228
Regulating activities of middlemen and other buyers of produce	97.4	1.7	.9	2.97	0.224

The survey then sought to find out the extent to which government should get involved in plant health regulation at farm level. *Table 7-17* below shows that the respondents preferred more government inputs in plant health regulation at farm level.

Table 7-17: Government Involvement in Plant Health Regulation at Farm Level

Plant Health Regulations	Get Involved More	Involved Same As Now	Can't Choose
Get directly involved in enforcement and impose penalties for non-compliance of plant health procedures	97.6	1.5	.8
Create more awareness for producers about the fruit-fly problem and applicable regulations	97.8	1.3	.8
Provide guidelines to producer groups to regulate themselves.	97.6	1.5	.8
Work with buyers of produce to enforce regulations	97.5	1.7	.8
Initiate partnerships between all relevant institutions and stakeholders to address the fruit-fly pest problem	97.6	1.5	.8

The survey shows that plant health regulations could be introduced with greater involvement of government in such areas as enforcement and imposing penalties for non-compliance of plant health procedures (97.6 per cent), creating awareness for producers about the fruit-fly problem and applicable regulations (97.8 per cent), providing guidelines to producer groups to regulate themselves (97.6 per cent), working with buyers of produce to enforce regulations (97.5 per cent), and initiating partnerships between all relevant institutions and stakeholders to address the fruit-fly pest problem (97.6 per cent).

While desiring more government involvement in plant health control, smallholders did not difficulty in implementing on-farm regulatory measures for fruit-fly control if required by Government.

Table 7-18 shows that a big majority did not expect difficulty in implementing different measures required by government. Thus, from responses received, there is a great opportunity to introduce phytosanitary controls at farm level. Smallholder producers are supportive of any regulation that would sustain and promote avocado production and marketing activities.

Table 7-18: Difficulty in Adopting/Implementing On-Farm Regulatory Measures

On-Farm Regulatory Measures	Not at All	Some Extent	Large Extent	Don't Know
Type of variety to be planted is controlled by government	96.0	2.0	.5	1.5
Only planting material from government certified nurseries are permitted for planting.	95.1	2.7	.7	1.5
Avocado production protocol or guidelines are provided to farmers	95.3	1.9	.3	2.5
Producers participate in training on pest management practices in avocado	95.6	1.9	.3	2.2
Producers participate in pest surveillance programs through trapping and fruit sampling	89.4	4.9	3.2	2.5
Only registered pesticides may be used on the farm	91.1	3.9	2.4	2.7
Movement of harvested produce from the farm must be accompanied with movement permit from government	87.5	3.7	5.9	2.9

Smallholder avocado producers would like to see more involvement of government in plant health controls and services, including enforcement of regulations and imposing penalties for non-compliance, creating awareness for producers about the fruit-fly problem and applicable regulations, providing guidelines to producer groups for self-regulation, and initiating partnerships between all relevant institutions and stakeholders to

address the fruit-fly pest problem. Furthermore, smallholder avocado producers are willing to implement plant health measures at farm-level and do not anticipate any difficulties if guided accordingly.

7.3.6 Phytosanitary Institutional Arrangements

The survey sought to establish type of institutional arrangements in place for provision of essential plant health services to smallholder avocado producers in Kenya. This section looks at some essential institutional support services that avocado farmer receive of should receive from the government. For a start, the survey focussed on five essential plant health services including provision of pest information; involvement of producers in pest surveillance; training in pest management; and on-farm inspections. Using a *Likert scale* ranging from *Strongly Agree* to *Strongly Disagree*, the weighted mean of each service was computed.

Table 7-19: Essential Plant Health Support Services Received

	Strongly Agree	Agree	Disagree	Strongly Disagree	Undecided	Mean	STDEV
Information about pests and diseases affecting my crops, including avocado	5.4	17.3	28.4	48.6	.3	1.79	0.918
Pest Surveillance activities (through use of traps or collection of samples)	4.9	6.3	40.1	48.7	0.0	1.67	0.800
Training in pest management and other agronomic activities of avocado	5.9	15.7	30.2	48.1	0.0	1.79	0.912
Visits to the farm and advice on pest management on avocado	5.8	10.8	35.4	48.1	0.0	1.74	0.868
Harvested produce is inspected before being sold to buyers	5.6	7.4	39.0	48.0	0.0	1.71	0.831

Findings presented in *Table 7-19* show that overall 77 per cent of the respondents disagreed that they received any of the five essential plant health services. From the findings, only a small proportion of smallholder avocado producers do receive adequate essential plant health support services: information about pests and diseases affecting crops (22.7 per cent); pest surveillance from different institutions (11.2 per cent); training in pest management and other agronomic activities of avocado (21.6 per cent); visits to the farm and advice on pest management (16.6 per cent); inspection of harvested produce before being sold to buyers (13 per cent).

Following on, the survey sought to link the services received by smallholder producers with the service providers. The respondents were asked to indicate how much they had interacted with government institutions playing a role in plant health along the avocado production and marketing chain over the previous 2 years on avocado matters. *Table 7-20* shows that majority (more than 90 per cent) of the respondents (avocado smallholders) had not interacted with government institutions (HCD, KEPHIS, KALRO and PCPB) providing plant health services. However, extension staff from the Ministry of Agriculture had interacted with 42.3 per cent of the respondents at least once.

Table 7-20: Interactions with Government Institutions

Government Institutions	Not at All	Once	2-4 Times	More than 5 Times
Ministry of Agriculture Extension Staff	53.7	29.9	12.0	4.4
Horticultural Crops Directorate (HCD)	90.4	8.3	1.3	0.0
Kenya Plant Health Inspectorate Service (KEPHIS)	96.5	3.4	0	.2
Kenya Agricultural and Livestock Research Organization (KALRO)	94.4	3.9	1.0	.7
Pest Control Products Board (PCPB)	98.5	1.2	.3	0

From the study government institutions have not played an active role in provision of plant health services along the avocado production and marketing chain. The Ministry of Agriculture, whose role in extension is interactive with smallholder producers, could be a useful channel for provision of plant health services.

Next, the respondents were asked to indicate which government institution was better placed to provide support to farmers on various aspects of plant health. The response is summarised in *Table 7-21* below. The respondents generally stated that Ministry of Agriculture was the select institution for all aspects of plant health for smallholder avocado producers, while HCD ranked second.

Table 7-21: Preferred Government Institution for Plant Health Service Provision

Government Institution	Extension Staff	HCD	KEPHIS	PCPB	KALRO	I Don't Know
Information about pests and diseases affecting my crops	84.1	2.5	.8	2.9	2.7	6.9
Conduct Pest Surveillance activities (through use of traps or collection of samples)	74.3	9.3	1.2	3.2	2.9	9.1
Training on how to manage pests and diseases	77.2	7.9	1.5	1.7	2.9	8.8
Visit my crop in the field and provide advise	78.4	6.4	1.4	.8	3.9	9.1
Inspect harvested produce for cleanliness from pests and diseases before selling	53.4	23.1	11.0	.2	1.7	10.6
Impose penalties for non-compliance to plant health procedures	52.4	6.9	28.7	.3	1.0	10.6

The findings show that smallholders strongly preferred Ministry of Agriculture extension staff for various plant health service provision with regard to: information about pests and diseases affecting my crops (84.1 per cent); pest surveillance activities (74.3 per cent); and, training on how to manage pests and diseases (77.2 per cent); visit crop in the field

and provide advice (78.4 per cent). Inspection of harvested produce for cleanliness from pests and diseases before selling was better provided by Ministry of Agriculture extension staff (53.4 per cent), HCD (23.1 per cent) and KEPHIS (11 per cent). Imposition of penalties for non-compliance to plant health procedures was better provided by Ministry of Agriculture extension staff (52.4 per cent) and KEPHIS (28.7 per cent). The results show that the service of KEPHIS to smallholders should be limited to compliance with phytosanitary regulations but training or extension should be left to Ministry of Agriculture and HCD.

Considering that government may delegate some or most plant health services to private sector, the survey sought to establish preferred private service providers of plant health services. A summary of preferences by smallholder avocado producers is shown in *Table 7-22* below.

Table 7-22: Recommended Private Institutions Better Placed to Provide Support

Private Institutions	None	Producer Organizations	Buyer Company	Pesticide Companies	Consultant	I don't know
Information about pests and diseases affecting my crops	.5	12.3	50.2	27.0	1.0	9.0
Conduct Pest Surveillance activities (through use of traps or collection of samples)	.3	18.4	56.1	14.9	.5	9.8
Training on how to manage pests and diseases	.3	12.7	66.7	10.1	.5	9.6
Visit my crop in the field and provide advise	.3	13.7	74.3	1.4	.2	10.1
Inspect harvested produce for cleanliness from pests and diseases before selling	.7	19.3	66.4	3.2	.2	10.3
Impose penalties for non-compliance to plant health procedures	11.1	15.0	61.5	.7	.3	11.3

The findings reveal that smallholder avocado producers believe that buyers of produce should play co-regulation and service provision on plant health matters than producer organisations. However, the smallholder producers felt that pesticide companies are better on information and advisory on pests and diseases affecting crops. The preference of using buyer companies for SPS service delivery could be out of the need for assurance that buyers take responsibility for the safety and quality of produce they buy from smallholders.

Smallholder producers were then asked to rank plant health organisations in the public sector according to their perceived usefulness. As shown in *Table 7-23* below, over 90 per cent of smallholder avocado producers do not think providers of plant health services in the public or private sector are helpful at all. From the analysis, the Ministry of Agriculture was regarded the most helpful to the smallholder producers of avocado. The vast majority of the respondents felt that the institutions have not been generally helpful, save for the Ministry of Agriculture.

Table 7-23: Helpful Plant Health Institutions in Kenya

Institution	Not at All Helpful	Slightly Helpful	Helpful	Very Helpful	Don't Know
Ministry of Agriculture.	48.3	34.5	13.2	3.9	0.1
Horticultural Crops Directorate (HCD).	89.0	8.3	1.2	0.5	1.0
Kenya Plant Health Inspectorate Service (KEPHIS).	95.9	2.9	1.7	1.7	0.8
Kenya Agricultural and Livestock Research Organization (KALRO).	92.7	4.2	1.7	0.5	0.9
Pest Control Product Board (PCPB).	97.5	1.5	0	0.2	0.8
Fresh Produce Exporters Association of Kenya (FPEAK)	98.3	0.7	0	0.2	0.8
Pesticide Companies	95.8	2.5	0.7	0.2	0.8
Private Consulting Company	95.8	2.2	1.0	0.2	0.8
Producer Group	91.4	2.5	2.7	2.5	0.9

Finally, the respondents were asked to indicate which institution ought to take a leading role in solving serious pest problems or coordinating control of pests such as fruit-fly. As indicated in *Table 7-24* below, the Ministry of Agriculture was the most preferred in creating awareness and training on fruit-fly and other pest problems (92.3 per cent), and conducting surveillance activities on pest problems on the farm (75.6) per cent.

The findings thus show that smallholder producers in Kenya had not received adequate plant health services from relevant SPS institutions. With devolution of government services and merging of public sector organisations, a key policy issue will be on the arrangement of SPS institutions for effective SPS controls and services to private sector and smallholder producers.

Table 7-24: Institution to Solve Serious Pest Problems

Institutions	Ministry of Agriculture	HCD	KEPHIS	KALRO	PCPB	FPEAK	Pesticide Companies	Private Consults	Producer Group
Creating awareness and training on fruit-fly and other pest problems	92.3	1.4	.2	1.3	.7	0.0	4.1	0.0	0.0
Conducting surveillance activities on pests problems on the farm	75.6	5.0	.4	3.1	4.1	0.0	2.2	0.0	9.7
Regulating production and marketing activities of avocados to control pest problems	56.6	34.2	2.5	1.1	.5	1.8	1.3	.2	1.8
Coordinating all actors in the avocado production and marketing chain	52.1	17.0	1.3	1.1	.4	25.9	1.3	0.0	1.1
Impose sanctions non-compliance PH procedures	47.4	11.8	38.0	1.1	.2	0.0	1.3	0.0	.4

There is also need to review the roles and functions of the various SPS institutions in Kenya and come up with a coordinated approach to provision of SPS services and controls necessary to promote safe trade in agro-food products. It is also necessary to introduce public-private partnerships in SPS controls and service provision, including delegation of compliance services and co-regulation. The role of smallholder producer organisations in provision of SPS services and co-regulation should be explored.

Overall, the satisfaction level among smallholder producers across the country over government SPS support services is less than 20% as summarised in *Table 7-25*. This poses a high level of risk in compliance with SPS requirements. Moreover, although smallholder producers are generally favour of any regulation that guarantees access of their produce to high level markets (see *Table 7-15*), the producers have not had adequate contact with SPS Institutions (see *Table 7-19*) in all regions.

Table 7-25: Summary of Satisfaction of Smallholder Producers on SPS Services

		% Awareness on SPS Issues & Programmes	Adequacy of Surveillance	On-farm Pest Management Services
Western	Average	0	0	0
	Bungoma	0	0	0
	Busia	0	0	0
	Kakamega	0	0	0
	Vihiga	0	0	0
Nyanza	Average	0	0	0
	Kisii	0	0	0
Rift Valley		4	0	0
	Trans Nzoia	0	0	0
	Marakwet	0	0	0
	Uasin Gishu	16	0	0
	Nandi	0	0	0
Central		18.6	1.5	1.6
	Nyeri	10	5	1.3
	Kirinyaga	23.8	0	0
	Murang'a	34.4	1	5
	Kiambu	6.5	0	0
Eastern		6.9	0	0
	Meru	2.3	0	0
	Tharaka Nithi	7.7	0	0

	Embu	4	0	0
	Machakos	20.8	0	0
	Makueni	0	0	0
Coast		2	0	0
	Taita Taveta	2	0	0

7.4 Conclusion

Kenya's SPS control system for avocado suffers from systemic inadequacies and has not supported effective implementation of SPS requirements at farm level. As a consequence, smallholder producers have not effectively implemented SPS requirements at farm level. Inability to comply with SPS regulations could exclude many smallholder producers from continued participation in avocado exports due to inability to comply with SPS regulations in export markets and domestic markets as well. As currently set up, the SPS Control system cannot guarantee effective implementation of phytosanitary standards at farm level, nor to open up new markets for avocado produced by smallholder producers in Kenya.

Over 80 per cent of avocado in Kenya is produced by smallholders, with at least 75 per cent of smallholder avocado producers owning 10 trees or less. While this offers opportunity for developing pro-poor strategies such as inclusion of smallholders in global value chains, only 10 per cent of smallholder avocado producers are organised into producer groups. Majority of smallholder avocado producers are not organised in producer groups and may pose value chain governance challenges and inefficient management of agronomic practices, in particular pest management and marketing.

The demographic characterisation of avocado production is expanding across the country and bringing socio-economic benefits to smallholder producers. However, there exist important SPS issues to be addressed during production and marketing of avocado from

smallholder producers. The majority of avocado is produced for domestic markets, which calls for countrywide strategies to ensure that SPS requirements in avocado production apply equally both for exports and produce destined for domestic consumption. This will open up opportunities to expand avocado supply base and promote inclusion of producers across the country in export-oriented production.

Pest surveillance is a necessary SPS control activity for government. Although some surveillance activities have been carried out in regions where avocado is produced for exports they are inadequate. Some farmers carry out scouting of pests for pest control purposes at individual farm level, but due to technical capacity gaps among smallholder producers, trained government entomologist or extension officers should assist producers identify pests on-farm. Pest scouting data at farm level can be a useful source of important information for government control programmes, and for establishing pest free areas (or areas of low pest prevalence), and thus integrating such regions into global value chains.

Government SPS support services to smallholder avocado producers are inadequate. Coupled with low levels of SPS awareness, management of fruit-flies at farm level or as part of an area-wide pest control strategy is severely lacking. Besides, the government has not developed a Phytosanitary Management Protocol or SPS management manuals and other tools to guide producers and other value chain actors implement pest control practices. With a wide host-range, management of fruit-flies in Kenya is likely to remain a challenge for a long time, and effective management will call for integrated measures at farm level and among multiple actors in the avocado value chain.

Although the Government of Kenya has opportunity to develop and implement SPS regulations and procedures at farm-level as smallholder producers are generally in support of measures that can promote trade. While there exists a long menu to select regulatory controls for fruit-flies control, official controls at primary production level are severely lacking. On SPS institutional arrangements, plant health controls and service delivery to smallholder producers is inadequate. Majority of smallholder producers have not had essential contact with SPS support institutions. Producers tend to appreciate information from institutions that deliver services at farm level, whether public or private.

7.5 Recommendations

1. Promote avocado productivity at primary production level by establishing and strengthening producer groups. These will serve as entry points by government and private sector to introduce efficient production systems, conduct training and govern production activities along the avocado value chain.
2. SPS awareness programmes are a necessary component of a wider SPS control strategy, but are likely to produce negative effects that exclude smallholders from export-oriented production. SPS awareness should be accompanied by tools that help smallholder producers implement SPS requirements.
3. Pest surveillance: Considering the rising importance of SPS issues in trade, the government needs to enhance pest surveillance activities not only in regions producing crop for exports, but across the country to address establishment and spread of pests of trade importance.

4. The government should implement integrated measures in a systems approach to address SPS concerns along the avocado value chain, in particular among smallholder producers. The government should also strengthen surveillance activities such as fruit-fly trapping and collection of infested fruits for sampling survey in order to designate pest free zones or area of low pest prevalence for fruit-flies.

5. There is an urgent need to support smallholders to implement and comply with SPS regulations. Smallholder producers are not opposed to regulation, but any controls should be supported by implementation tools such as production protocols and regular training and extension visits.

6. There is need to strengthen SPS institutions for effective SPS controls and service delivery. This will ensure that adequate SPS regulatory controls and services are developed to support safe avocado trade.

CHAPTER 8 : SUMMARY, CONCLUSION AND RECOMMENDATIONS

8.1 Summary

The purpose of this study was to assess how the application of sanitary and phytosanitary (SPS) standards impacts on trade and development in Kenya. The overall research question in the study was to find out whether there was scope to improve the Kenyan SPS system which, although relatively well established and resourced, its effectiveness was in question due to continued border interceptions and rejections of its agro-food exports. In particular the study sought to: (1) understand the causes and impacts of SPS related import restrictions on trade and development in Kenya; (2) examine performance of Kenya's SPS institutions in facilitating safe agro-food trade; (3) understand how Regional SPS Policy and Institutional Frameworks influence Kenya's agro-food trade; (4) understand application of SPS controls in Kenya's export oriented value chains; and (5) assess the effectiveness of Kenya's SPS services in securing participation of smallholder producers in regional and international trade.

Causes and Impacts of border rejections

The study sought to establish scenarios that led to South Africa's ban of Kenya's avocado exports; to provide a rapid assessment of the initial outcomes of the South African ban on Kenya's avocado exports; to find out the impacts of the South African ban on Kenya's avocado exports; and to make recommendations necessary to address the trade ban and open up new markets for Kenya's avocado exports.

South Africa withdrawal of import permits for avocado from Kenya was in response to reports about the occurrence and spread of *B. invadens*, an invasive fruit fly, in Kenya.

Because of its characteristics and economic importance, *B. invadens* is classified as a quarantine pest. This action was a precautionary measure by South Africa to prevent introduction of the pest into its territory to the peril of the very important fruit industry. The baseline scenario was one with increasing avocado production among smallholder producers in Kenya and rising export volumes to South Africa. The SPS institutional framework was in place, particularly for phytosanitary matters, but was not well coordinated and the capacity to rapidly respond to phytosanitary threats was inadequate.

The initial outcomes of the ban include loss of exports worth KES400 million (US\$5 million) annually. Although the amount of money lost annually appears small, it points all at potential bigger problems in sectors and markets where big volumes are concerned. The impacts are particularly high if high value markets are lost, which may be difficult to regain. The main exporters lost important export markets which had taken them many years to establish. The ban also caused changes in the production and marketing systems. Overall, there was a strong focus on domestic market outlets and heavy post-harvest losses occasioned by excessive supply of avocado. As such the ban had high negative economic impacts throughout the key value chain actors.

Under the prevailing circumstances, whether or not negotiations take place the solution to the *B. invadens* problem is in the future, with long-term avocado trade implications for Kenya. The import ban by South Africa on avocado from Kenya is likely to persist longer than initially anticipated. In addition it is expected that there will be increasing concerns on the capacity of Kenya's SPS control system and its ability to promote safe international trade. This in itself will put Kenya in a delicate position in keeping existing agro-food markets abroad or in opening up high value export market destinations.

Implementation of the SPS Agreement in Kenya

In order to assess the strength of Kenya's institutions to address SPS related concerns, the study examined the implementation of SPS agreement in Kenya, particularly in terms of establishment of SPS institutional environment and organisational aspects for controls, inspections and approval of consignments. Specifically, the study was conducted to: (1) examine SPS policy and institutional environment in Kenya; (2) understand the institutional arrangements and coordination mechanisms in place; (3) identify challenges and opportunities in implementation of the SPS Agreement; and (4) to make recommendations on institutional choices necessary to improve performance of Kenya's SPS Institutions.

Kenya's Food control system is multi-sectoral and is impeded in various sectoral policies and laws thereby allowing many agencies and actors to play a role in food safety. Animal health policies in Kenya are covered in several policy documents, but the overall animal health framework is contained in the National Veterinary Policy. SPS related challenges addressed by the NVP include a weak animal disease management capacity, poor infrastructure for animal, low compliance with sanitary measures, and an underdeveloped SPS institutional capacity. Kenya does not have an overall policy on plant health or phytosanitary matters. Besides, Kenya has not established a National Biosafety Policy framework that will help the country to develop measures to protect the country from damage that may be caused by entry, establishment and spread of alien pests and diseases. Despite the importance of phytosanitary matters in forestry, there is no policy on phytosanitary matters in the forestry sector, particularly for managing forest pests and invasive alien species.

In general, Kenya's SPS related policies have not addressed current SPS related concerns in detail. The policies have not clearly defined the need to conduct SPS risk assessments; identification of risk management options and roles of SPS institutions; and mechanisms for updating SPS regulations and control procedures. In addition, definition of functions of institutions involved in surveillance, testing, inspections and approval activities for goods traded have not been properly elaborated. There is also disharmony between policies that promote agriculture, health and trade, which may make it difficult to make SPS decisions.

The Republic of Kenya has a variety of SPS regulations. However, most SPS laws and regulations in Kenya outmoded as they were established many years before the SPS Agreement. Some laws are also over restrictive and not trade facilitative. There are also many SPS areas not covered by current laws. A number of laws do not have adequate supportive SPS control procedures and implementation tools (such as inspection checklists, import and export permits, among others). There is also a challenge of multiple sectoral laws and regulations not in tandem with general SPS laws. Many of Kenya's SPS laws and regulations which have impact on trade have not been notified to WTO and trading partners and where notified, they did not give opportunity for comments from trading partners and other interested parties.

Some SPS regulations, though technical in nature, have not been developed in line with international standards under Codex, IPPC or OIE. There is also a challenge of effective participation. Although the standards and rule setting process in Kenya has improved over time, Kenya's participation in the various committees and work of these bodies has been irregular owing to limited financial resources and lack of data to support decisions.

Priority given by Government to support participation in international standard setting is low. Similarly, participation in Scientific Committees of these bodies is hampered by lack of country data and experts that will provide empirical information and facts on subject matters under consideration for risk assessment and scientific advice.

Equivalency –the alternative SPS measures proposed by an exporting country to an importing country which offer the same level of protection as those in use by the importing country, has not been exploited only to a less extent. Except for food safety, Kenya has not effectively negotiated, implemented and maintained equivalency and other SPS-related agreements with other countries regarding regulations, norms and processes under their mandates.

Regional SPS Frameworks

In order to understand the influence regional SPS frameworks have on national SPS systems, the study assessed EAC policy and institutional frameworks for control and management of SPS risks. Specifically, the study was intended to: (1) map out EAC SPS policy and institutional environment governing food and agricultural trade of EAC Partner States; (2) assess the performance of the SPS institutional arrangements and coordination mechanisms in supporting agricultural and food trade of The EAC; and (3) identify the different institutional choices available to enhance the performance of EAC SPS system.

SPS policy framework of the EAC is set out in the EAC Agriculture and Rural Development Policy and Strategy. The policy framework is further mentioned in the EAC trade policies at regional and national levels. These documents define SPS policy

framework and set the stage for generating SPS agenda within the EAC. However, policies specific to addressing SPS risks within the EAC region are currently not in place. The integration process of the EAC is governed by the Treaty for the Establishment of the East African Community (EAC Treaty), which also provides the overall SPS policy and legal framework of the Community. Although Article 108 specifically provides for cooperation in the control of plant and animal diseases, the EAC Treaty does not mention food safety.

The EAC SPS legal environment comprises of laws, decrees, regulations, requirements, and procedures that EAC governments apply to protect human, animal, or plant life or health from risks arising from the entry or spread of plant- or animal-borne pests or diseases, or from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs. The EAC legal context is specifically defined in the EAC Customs Union Protocol; EAC Common Market Protocol; EAC SPS Protocol and the Trade Negotiations Act. There are also specific legal documents governing trade between the EAC and other trading blocs in Africa and beyond.

Apart from the EAC Trade Negotiations Act 2008 and relevant provisions of the EAC Treaty and SPS Protocol, there has been so far no Act enacted that relates directly to SPS matters within the EAC. This could be attributed to either a failure by the Council of Ministers to initiate SPS related Bills, or a lack of understanding on the part of EALA on the importance of SPS laws in facilitating safe intra-EAC trade in agricultural and food products, although the EALA blames the failure on the “*Council of Minister’s slow and protracted initiation of Bills*”.

Practically, there is no formal structure for the application of SPS measures at the regional level. While budgetary allocation is necessary for effective implementation of the SPS Protocol in EAC partner states, the EAC Protocol has not provided the need for prioritisation of SPS matters and modalities for funding. Nevertheless, the SPS protocol allows partner states to seek technical assistance to build capacities for SPS compliance. On transparency, the SPS protocol requires partner states to constantly share information on SPS matters and calls for consultation and cooperation in implementation of the SPS protocol.

Overall, while the EAC is on an accelerated path of broadening and deepening cooperation, this progress may soon be constrained by the overall performance of EAC SPS institutions. Much ground has been covered in development of SPS policy and legal frameworks, but there is scope to improve EAC SPS systems by the strengthening of the policy and institutional frameworks. The SPS policy framework is weak and unlikely to address current and emerging SPS related concerns in the region. The legal and regulatory framework does exist, but is not fully in conformity with international norms. There is also a weak link between the established SPS frameworks and national mechanisms for implementation.

Upgrading Value Chains for SPS Compliance

The study sought to understand how Kenya manages SPS concerns along export-oriented value chains. More specifically, using the case of avocado value chain in Kenya, the study was conducted to: (1) map out the avocado value chain in Kenya; (2) identify SPS related constraints along the avocado value chain in Kenya; (3) identify SPS control

measures for upgrading the avocado value chain in Kenya; and (4) assess costs associated with implementation of SPS control measures.

The structure of avocado value chain in Kenya is complex. The main segments of the chain are typical of global agricultural value chains, with avocado supply side activities carried in Kenya but targeting high-value markets both within the country and abroad. There are many value chain actors involved at each stage of the value chain, just as are SPS service providers from the public and private sector. The main SPS constraints relate to food safety and phytosanitary matters.

From the input supply point of view there are weaknesses linking the needs of producers with inputs that are compliant with SPS standards. However, use of these products by smallholder producers for pest control is limited. Overall awareness on SPS requirements in avocado production is limited among value chain actors and regulators as well. SPS awareness programmes have not specifically targeted avocado industry. In addition, there is currently no production protocol available to guide the actors on SPS requirements for avocado.

There are SPS and quality concerns that should be addressed along the avocado value chain in order for Kenya to remain competitive in global markets. These include uneven maturity of fruits; inability to respect delivery schedules; poor or no traceability; and poor attention to quality aspects. Phytosanitary concerns have not been raised by individual buyers abroad, except for the precautionary action taken by South African government to stop avocado imports from Kenya, in order to safeguard their fruit industry from likely

damage from an invasive fruit fly reported in scientific journals as present and distributed in Kenya.

Opportunities to enhance SPS controls along the value chain include the strengthening of value chain governance on the one hand, and upgrading the value chain on the other. Strengthening value chain governance may include, for example, developing and implementing SPS compliance strategy; strengthening public-private partnerships in SPS compliance; enhancing intersectoral collaboration; developing detailed guidelines to support implementation of SPS regulations; and establishing SPS awareness, education and extension programmes private sector and smallholder producers. Value chain upgrading may take the form of process, product, functional or inter-sectoral upgrading.

Integrating Smallholder Producers into global value chains

The study assessed perceptions by Kenyan small-holder avocado producers on the usefulness of the national SPS controls and services in gaining and maintaining market access in a global value chain context. The study specifically sought to (1) determine the extent Kenyan smallholder avocado producers are informed about SPS regulations; (2) gain an understanding of smallholders' involvement in pest risk analysis; (3) find out the extent to which smallholder producers implement phytosanitary standards at farm level; and (4) find out which institutional arrangements are in place to support smallholder avocado producers implement phytosanitary standards in Kenya. Overall, services from Kenyan SPS institutions are perceived inadequate to support stallholders address SPS matters at farm level and integrate into global value chains.

Over 80 per cent of avocado in Kenya is produced by smallholders, with at least 75 per cent of smallholder avocado producers owning 10 trees or less. While this offers opportunity for developing pro-poor strategies such as inclusion of smallholders in global value chains, only 10 per cent of smallholder avocado producers are organised into producer groups. Majority of smallholder avocado producers are not organised in producer groups and may pose value chain governance challenges and inefficient management of agronomic practices, in particular pest management and marketing.

The demographic characterisation of avocado production in Kenya reveals that avocado production is expanding across the country, bringing socio-economic benefits to smallholder producers. However, there exist important SPS issues to be addressed during production and marketing of avocado from smallholder producers. The majority of avocado is produced for domestic markets, which calls for countrywide strategies to ensure that SPS requirements in avocado production apply equally both for exports and produce destined for domestic consumption. This will open up opportunities to expand avocado supply base and promote inclusion of producers across the country in export-oriented production.

8.2 General Conclusions

Conclusions on SPS Trade Restrictions

SPS risks within a producing country have a potential to close out high value markets for agro-food exports from exporting countries. Countries have a right to protect their territories from SPS risks that may be carried by imports. South Africa withdrawal of import permits for avocado from Kenya was in response to reports about the occurrence

and spread of *B. invadens*, an invasive fruit fly, in Kenya. Because of its characteristics and economic importance, *B. invadens* is classified as a quarantine pest. This action was a precautionary measure by South Africa to prevent introduction of the pest into its territory to the peril of the very important fruit industry. This case demonstrates how a single pest can close out a significant export market with many negative impacts on producers and suppliers of the product.

A weak national SPS system in the exporting country cannot provide the requisite conditions that ensure risks in the production and supply of agro-food products are effectively addressed. Governments of exporting countries have an obligation to establish SPS compliance infrastructure that supplies production and sale of safe agro-food products. The onus was on Kenya to demonstrate through effective fruit fly control programmes that avocado exports would present no phytosanitary risks to the South Africa's giant fruit industry. However, it has taken Kenya more than 5 years to come up with effective measures necessary to address the *B. invadens* problem, an indication of underlying weaknesses in Kenya's SPS control system, particularly in phytosanitary matters. This is an indicator of a weakness in Kenyan SPS policies and institutions in addressing SPS concerns along export-oriented agro-food value chains. The situation is worsened by inefficiency by which effective measures are developed.

Weak SPS risk management systems exposes agro-food chains into potential shocks arising from export market access restrictions. High value export markets must be protected from SPS risks and measures must be put in place to address SPS concerns at each stage of the value chain. The baseline scenario in the South Africa's ban of Kenyan avocado was one of increasing avocado production among smallholder producers in

Kenya and rising export volumes to South Africa, but with weak SPS controls. With rising foreign exchange earnings from “off-season avocado” exports to South Africa, this was the main export destination for second season avocado exports from Kenya. The poverty reducing effects of the avocado trade were significant. Smallholder producers provided more than 80 per cent of the total farm production, with employment to more than 20,000 farm families and their workers. The SPS institutional framework was in place, particularly for phytosanitary matters, but was not well coordinated and the capacity to rapidly respond to SPS threats like those posed by *B. invadens* was inadequate.

The initial monetary value of lost exports from border rejections may be small, but the long-term and ripple effects could be serious, particularly if other high value markets take similar actions. Whether “small or big” money is lost as a result of trade restrictions timely actions to effectively address SPS concerns are necessary to maintain export markets or expand into new high value destinations for exports. The initial outcomes of the South Africa’s avocado ban on Kenyan avocado include loss of exports worth KES400 million (US\$5 million) annually. Although the amount of money lost annually appears small, it points all at potential bigger problems in sectors and markets where big volumes are concerned. The impacts are particularly high if high value markets are lost, which may be difficult to regain. Major exporters lost important export markets which had taken them many years to establish. The ban also caused changes in the production and marketing systems. As such the ban had high negative economic impacts throughout the key value chain actors. The social impact of the ban was aggravation of the poverty situation in the main avocado producing regions.

SPS threats call for technical nature, and they may take time to address a specific threat. Scientific knowledge of causative agents and technical methods and procedures may take long to consolidate and implement for effective control. SPS control procedures and programmes have to be developed to implement SPS regulations. In the case of *B. invadens*, measures put in place by Kenya to address the problem have not been effective enough to eradicate the fruit fly or to manage the pest in ways that do not pose risk to international trade. While control strategies for the pest are known, Kenya has not developed area-wide control strategies and programmes and tools such as phytosanitary protocol to assist producers and other value chain actors to control the pest within their scope.

Coordinated stakeholder engagement in a public-private arrangement is necessary to roll out fruit-fly control programmes. There are many initiatives to address the fruit fly problem in Kenya, but they are not well coordinated centrally. In this regard, the flanking measures to prevent and mitigate against the pest, as well as institutional enhancement measures put in place have not solved the *B. invadens* problem in Kenya. There are, however, efforts to come up with coordinated approaches to fruit fly control in Kenya, but more time and resources are required to realize positive a result. Broader strategies involving integrated measures in a systems approach will be also required.

Once controls to address SPS threats have been implemented, it is necessary that such controls are discussed with trading partners to ensure that they achieve appropriate level of SPS protection of the importing country. In this regard specific strategies developed and control programmes implemented have to be discussed and/or negotiated between trading partners. Under the prevailing circumstances, whether or not negotiations take

place, the solution to the *B. invadens* problem lies in the future, with long-term avocado trade implications for Kenya. The import ban by South Africa on avocado from Kenya is likely to persist longer than initially anticipated. In addition it is expected that there will be increasing concerns on the capacity of Kenya's SPS control system and its ability to promote safe international trade. This in itself will put Kenya in a delicate position in keeping existing agro-food markets abroad or in opening up high value export market destinations.

Conclusions on National SPS Institutions

A strong SPS policy environment is an important component of a national SPS Control System. SPS policies and strategies should identify SPS threats and mechanisms to address them. SPS risk assessment, management and communication may bring together multiple actors and organisations with similar or varying capacities and mandates on SPS matters. Multi-sectoral approaches to SPS controls are therefore inevitable in achieving effective SPS controls in situations where many stakeholders are involved. Kenya does not have a consolidated SPS policy and strategy. However, there are various sectoral policies addressing some aspects of SPS risks. Other sectoral policies, although very elaborate on various sector issues, are deficient on matters pertaining to SPS risks. This situation is unlikely to pick up SPS threats and address them in a timely and effective manner.

Multiplicity of SPS policies does not necessarily address SPS related concerns. In this regard it may be more rational to mainstream SPS policies in existing sectoral policy documents. Kenya's SPS related policies have not addressed current SPS related

concerns in detail. The policies have not clearly defined the need to conduct SPS risk assessments; identification of risk management options and roles of SPS institutions; and mechanisms for updating SPS regulations and control procedures. In addition, definition of functions of institutions involved in surveillance, testing, inspections and approval activities for goods traded have not been properly elaborated. There is also disharmony between policies that promote agriculture, health and trade, which may make it difficult to make SPS decisions.

Under the WTO trading system, every country has the right to come up with its own SPS laws and regulations in accordance with provisions of the SPS Agreement to ensure that traded products do not bring into the country SPS threats. However, such SPS laws and regulations may not be useful if they do not provide for effective control and management of SPS threats. They may also become an additional constraint if they are over-restrictive and costly to implement. The Republic of Kenya has a variety of SPS regulations. Most of these SPS laws and regulations are outmoded as they were established many years before the SPS Agreement. Some laws are also over restrictive and not trade facilitative. There are also many SPS areas not covered by current laws. A number of laws do not have adequate supportive SPS control procedures and implementation tools (such as inspection checklists, import and export permits, among others). There is also a challenge of multiple sectoral laws and regulations not in tandem with general SPS laws.

Though a country may have a variety of SPS regulations, they may in practice they may be over-restrictive with negative trade impacts if not developed in line with international standards under Codex, IPPC or OIE. Many of Kenya's SPS laws and regulations which

have impact on trade have not been notified to WTO and trading partners and where notified, they did not give opportunity for comments from trading partners and other interested parties. Although the standards and rule setting process in Kenya has improved over time, Kenya's participation in the various committees and work of these bodies has been irregular owing to limited financial resources and lack of data to support decisions. Priority given by Government to support participation in international standard setting is low. Similarly, participation in Scientific Committees of these bodies is hampered by lack of country data and experts that will provide empirical information and facts on SPS matters under consideration for risk assessment and scientific advice.

Equivalency agreements between countries on SPS matters may open up or expand high value markets for agro-food exports, because the alternative SPS measures proposed by an exporting country to an importing country may offer the same level of protection as those in use by the importing country. Equivalency has been exploited only to a less extent in Kenya. Except for food safety, Kenya has not effectively negotiated, implemented and maintained equivalency and other SPS-related agreements with other countries regarding regulations, norms and processes under their mandates. At regional level, Kenya and other EAC partner states have jointly come up with the EAC SPS Protocol which defines the equivalency arrangements in support of regional trade. However, these equivalency arrangements have not been mainstreamed in national SPS laws and regulations.

Capacity for risk analysis is essential in determining existing and emerging SPS threats, managing the identified risks and communicating effectively on identified risks and risk management strategies adopted. This calls for a capability to make decisions and take

action based on scientific principles and evidence, including the assessment, management and communication of risk. One of the weakest points in the Kenyan SPS control system is risk assessment. The current status is that there is no official system that compiles data or other types of information that can be used to identify potential sanitary hazards and to analyse SPS risks. As a consequence, SPS decisions as well as policy and regulatory actions are not supported sufficiently by scientific information or evidence.

A number of national institutions have a role in SPS matters, which calls for well-coordinated SPS institutional arrangements within the country. Mechanisms for effective enforcement of SPS regulations and management of SPS concerns along agro-food value chains can be addressed by different actors, both in the public and private sectors. Kenya has multiple SPS agencies across the risk assessment, risk management and risk communication arena. Coordination mechanisms involving national SPS institutional arrangements and interaction within the public sector and with the private sector are sub-optimal. Priority given to SPS issues within the country is low, thus affecting the efficiency of SPS institutions in both the public and private sectors. Information dissemination, communication and official representation at the WTO SPS Committee, Codex, OIE and IPPC is ad hoc, although key contact offices such as the WTO RC, NEPS, NNA and national SPS coordination committee have been established in the country. However, capacity gaps in the current institutional arrangements and coordination call for urgent attention.

Conclusions on Regional SPS Frameworks

Overall, the EAC is on an accelerated path of broadening and deepening cooperation, but this progress may soon be constrained by the overall performance of EAC SPS

frameworks. Much ground has been covered in development of SPS policy and legal frameworks, but there is still scope to improve EAC SPS systems by the strengthening of the policy and institutional frameworks. There is a weak link between the established SPS frameworks and national mechanisms for implementation. Moreover, SPS policies as well as SPS laws and regulations in EAC partner states have not been updated in line with the regional frameworks.

With increased political interest towards regional trade SPS threats across the borders are imminent. With many pests likely to travel across borders, regional SPS policies and strategies are necessary to address SPS threats and minimize SPS related non-tariff barriers (NTBs) to trade. The EAC faces multiple SPS threats and member states have recorded many SPS related NTBs imposed on agro-food products trade in the region. However, despite the SPS threats in the region, the EAC does not have sufficient SPS policies and strategies to address them. The current SPS policy framework of the EAC is set out in the EAC Agriculture and Rural Development Policy and Strategy, but is not elaborate enough to allow for effective regional SPS strategies to be developed. As a consequence, SPS related NTBs within the EAC are likely to persist and have negative impacts on intra-EAC agro-food trade.

Regional trade agreements can boost regional trade, but have to make provision for SPS legal frameworks that will ensure SPS threats in regional trade are identified and addressed. The integration process of the EAC is governed by the Treaty for the Establishment of the East African Community (EAC Treaty), which also provides the overall policy and legal framework of the Community. Article 108 specifically provides for cooperation in the control of plant and animal diseases, but the EAC Treaty does not

mention food safety. Owing to a lack of a food safety regional legal framework, EAC partner states have not had a regional push to develop effective regional approaches or establish national laws to address regional food safety challenges.

The trend towards establishing wider free trade areas promotes intra-regional trade, but poses greater challenges in application of common SPS measures in a wider geographical region. This is because wider geographical areas will have diverse SPS risks, calling for umbrella-like SPS frameworks that are flexible enough to allow multiple countries in the trading arrangements come up with their own SPS measures. As a REC, the EAC is currently involved in the establishment of a Tripartite Free Trade Area (TFTA) jointly with COMESA and SADC. While this opens a wider FTA with many participating countries, there are challenges in developing a harmonized SPS framework for the wider TFTA.

A strong regional SPS legal framework influences national SPS legal systems, but it must be broad enough to accommodate country level differences in the definition and implementation of national SPS regulations. The EAC SPS legal environment comprises of laws, decrees, regulations, requirements, and procedures that EAC governments apply to protect human, animal, or plant life or health from risks arising from the entry or spread of plant- or animal-borne pests or diseases, or from additives, contaminants, toxins, or disease-causing organisms in foods, beverages, or feedstuffs. The EAC SPS legal context is specifically defined in the EAC Customs Union Protocol; EAC Common Market Protocol; EAC SPS Protocol and the Trade Negotiations Act. There are also specific legal documents governing trade between the EAC and other trading blocs in Africa and beyond.

In order to assist member countries establish SPS measures that address identified SPS risks, regional SPS legal frameworks should comprise relevant regional SPS laws that make provisions for mechanisms of addressing SPS threats. Such laws should be relevant and developed in accordance with international best practice, and should not necessarily duplicate the SPS agreement. Regional SPS Frameworks have to be supported by participation in activities and work for international SPS standard setting bodies to ensure the SPS frameworks are up to date with changes and decisions at international level. Though observer status have been granted to the EAC as a regional economic community (REC), the EAC Secretariat has not been active in participation in the work of the SPS Committee, and technical committees of Codex, OIE and IPPC over the last ten years up to 2015.

Regional frameworks should be accompanied with SPS measures to help member countries apply such measures in a wider geographical area, thereby reducing unnecessary SPS related NTBs where similar SPS conditions exist. Countries of a region which have limited capacity to conduct scientific risk assessment or participate in international harmonization of SPS measures can adopt regional SPS measures to facilitate safe trade. EAC partner states completed development of a harmonized SPS regulatory framework in 2012 and is meant to ensure safe trade in agricultural and food products.

Regional SPS frameworks augment the implementation of the SPS agreement and have potential to exclude non-RTA member countries from benefits of such a framework. Regional SPS frameworks therefore have to be notified to the WTO under the applicable rules of RTAs and the SPS Agreement. The EAC has not notified trading partners

through the WTO transparency mechanism about the SPS frameworks in place. There is also disharmony between notifications systems of SPS ISSOs, the WTO Transparency Mechanism and regional information sharing mechanism under the EAC. Furthermore, while the SPS protocol requires partner states to constantly share information on SPS matters and calls for consultation and cooperation in implementation of the SPS protocol, information sharing is seldom done and this has resulted in longstanding SPS related NTBs in intra-EAC trade.

Considering the technical nature of SPS issues, regional SPS legal frameworks should support implementation of the SPS agreement by partner states through practical mechanisms. They should not duplicate the SPS agreement. Practically, there are no formal mechanisms that define the application of SPS measures within the EAC. While budgetary allocation is necessary for effective implementation of the SPS Protocol in EAC partner states. The EAC Protocol has not provided the need for prioritisation of SPS matters and modalities for funding. Nevertheless, the SPS protocol allows partner states to seek technical assistance to build capacities for SPS compliance at national level.

The potential introduction through regional framework of new regulatory standards not found in the WTO disciplines is identified a risk within the EAC partner states. The EAC is also establishing mutual recognition of conformity assessment to standards, while negotiating new, harmonized standards. This could lead to reduced compliance costs. The relationship between RTAs and global and regional value chain trade presents another risk. There is some evidence that integration through RTAs – when it includes “deep” regulatory and other cooperation beyond tariff liberalization – stimulates global value chains related trade.

Conclusions on Upgrading Export Oriented Agro-food Value Chains

The ability of any country to successfully participate in international agro-food trade depends upon how they establish requisite conditions for SPS compliance and implement effective controls to address SPS related concerns along the agro-food supply chain. While regulatory authorities in importing countries must ensure that imported products their national SPS regulations, value chain actors (producers, processors and exporters) in exporting countries must demonstrate compliance with SPS regulations and standards of the importing country. Kenya participates in international trade of a limited number of agro-food food products owing to SPS related concerns by importing countries, which has threatened continued participation of the country in global agro-food value chains.

Global agro-food chains involving developing countries are largely buyer-driven, with many processes and actors on the primary production and supply side. In Kenya, the structure of avocado value chain in Kenya is complex. The main segments of the chain are typical of global agricultural value chains, with avocado supply side activities carried in Kenya but targeting high-value markets both within the country and abroad. There are many value chain actors involved at each stage of the value chain, just as are SPS service providers from the public and private sector. In order to have an effective control of the processes and actors, a proper mapping of all processes and associated SPS risks is necessary. Responsibility of the actors involved must also be defined, particularly with respect of assessing, managing and communicating SPS risks. Effective control of existing and emerging SPS risks along the value chain calls for a well-coordinated public-private partnership.

This multiplicity of processes and actors along the value chain raises the risk of SPS threats at each stage of the value chain, which could be transmitted to importing countries through trade. From the input supply point of view there are weaknesses linking the needs of producers with inputs that are compliant with SPS standards. At the primary production level, overall awareness on SPS requirements in avocado production is limited among value chain actors and regulators as well. This makes it difficult to identify and effectively manage SPS concerns along the avocado value chain. With over 75 per cent of avocado produced by smallholders, greater efforts in SPS awareness and control programmes should be directed at farm level. Intermediaries for avocado supply from the farm to domestic open-air markets also pose significant SPS risk just as are the post-handling handling processes such as washing, waxing, storage, processing or freight to markets.

SPS concerns along agro-food chains are inevitable, and must be accurately identified for effective management. Proper risk assessment methodologies are required to identify SPS threats and devise control measures to mitigate against the threats. For Kenya's avocado value chain, the main SPS concerns on Kenyan avocado value chain relate to food safety and phytosanitary matters. There are also quality concerns that should be addressed along the avocado value chain in order for Kenya to remain competitive in global markets. Phytosanitary concerns have not been raised by individual buyers abroad, except for the precautionary action taken by South African and U.S. Federal governments to stop avocado imports from Kenya, in order to safeguard their fruit industries from likely damage from an invasive fruit fly reported in scientific journals as present and distributed in Kenya.

SPS controls along the value chain may exist but could be inadequate to effectively manage the identified SPS threats along the value chains. Government and private sector SPS service providers should work in a well-coordinated public private arrangement to address the SPS risks. Opportunities to enhance SPS controls along the Kenyan avocado value chain do exist, including the strengthening of value chain governance and upgrading through implementation of SPS risk control measures. Strengthening value chain governance may include, for example, developing and implementing SPS compliance strategy; strengthening public-private partnerships in SPS compliance; enhancing intersectoral collaboration; developing detailed guidelines to support implementation of SPS regulations; and establishing SPS awareness, education and extension programmes private sector and smallholder producers. Value chain upgrading may take the form of process, product, functional or inter-sectoral upgrading.

There are financial implications in implementing the SPS controls along the value chain. At the micro-level the costs and benefits of on-farm control measures may be insignificant. However, failures of SPS controls at any stage of the value chain may lead to exclusion of the value chain from international trade with varying impacts for all actors and the exporting country. SPS risk management options require investment in SPS compliance infrastructure which may be beyond financial capacity of individual actors along the value chain. Kenyan producers and exporters have invested in SPS management systems within scope of their work, and such investments are covered under cost of production. However, government has not developed detailed SPS procedures and tools to support implementation of SPS controls along the avocado value chain. As a

result the avocado value chain in Kenya is likely to suffer shocks from emerging SPS concerns.

Conclusions on Integrating Smallholder Producers into global value chains

The greatest concern participation in global value chains is that developing countries or particular types of producers, notably small famers, will be excluded from export markets. The fear is that new requirements will either force smallholder producers out of markets to which they have hitherto had access, or impose conditions that only large-scale operators can meet, resulting in the marginalization of small-scale farmers. In both cases, the potential development benefits from increasing global trade in agri-food products would be reduced.

The study assessed perceptions by Kenyan small-holder avocado producers on the usefulness of the national SPS controls and services in gaining and maintaining market access in a global value chain context. The study specifically sought to (1) determine the extent Kenyan smallholder avocado producers are informed about SPS regulations; (2) gain an understanding of smallholders' involvement in pest risk analysis; (3) find out the extent to which smallholder producers implement phytosanitary standards at farm level; and (4) find out which institutional arrangements are in place to support smallholder avocado producers implement phytosanitary standards in Kenya. Overall, services from Kenyan SPS institutions are perceived inadequate to support stallholders address SPS matters at farm level and integrate into global value chains.

Participation in global agro-food value chains has the potential to eliminate smallholder producers and retain only larger actors who can cope with SPS requirements from export

markets. In Kenya, smallholder avocado producers contribute significantly to the volumes of avocado supplied to export and domestic markets. With over 80 per cent of avocado in Kenya is produced by smallholders, the poverty reducing effects of inclusive participation of smallholder producers in global value chains are high. Smallholder producers may be incorporated into global value chains through consolidation into economic smallholder production units and the strengthening of forward linkages with buyers of their producers (such as lead-firms and exporters); promoting SPS awareness and training; involvement in SPS control programmes at farm level; enhance SPS regulations and control procedures; and continued support by SPS services providers.

From a policy point of view, government should develop pro-poor policies and strategies to ensure smallholders are not excluded from participating in global value chains. SPS awareness programmes are also necessary, but should be conducted jointly with service providers who have regular contact with and acceptance by smallholder producers using simple information tools to simplify the SPS subject. One way to achieve high awareness is to involve the smallholder producers directly in SPS control programmes.

Implementation of SPS laws and regulations may become a constraint to smallholder producers. Assistance to smallholders to implement SPS requirements as demanded in export markets should be a part of government programmes. An assessment of avocado producers in Kenya demonstrates that smallholder producers are opposed to introduction of any SPS regulation that will enhance their ability to comply with requirements that open up high value markets abroad. However, SPS regulations themselves may become an additional constraint to smallholder participation in international agro-food trade if

they are over-restrictive on smallholders or if they require costly investments beyond the reach of smallholder producers.

Smallholders may further participate in global value chains if they are assisted to implement SPS standards at farm level. This could include training, implementation of good agricultural practices with specific control measures for identified SPS risks. In this regard, SPS service providers should channel their supporting implementation of best practices and standards at farm level. Government should develop SPS implementation manuals and establish regular SPS compliance programmes among smallholder producers. In general, Kenya's SPS control system for avocado suffers from systemic inadequacies and has not supported effective implementation of SPS requirements at farm level. As a consequence, smallholder producers have not effectively implemented SPS requirements at farm level. As currently set up, Kenya's SPS Control system cannot guarantee effective implementation of phytosanitary standards at farm level, nor secure continued participation of smallholder producers in global value chains.

8.3 General Recommendations

There is scope for improvement of Kenya's SPS systems at both regional (EAC) and national levels.

Recommendations to address SPS concerns of Trading Partners

Kenya should ensure that SPS threats, such as the invasive fruit fly, are rapidly controlled on two broad fronts: strengthening SPS institutions on the one hand, and addressing SPS concerns at each stage of the value chain. Several interventions are recommended to address the causes of the ban. These include: Creating awareness in SPS standards in general

and fruit fly control in particular; to implement integrated measures in a systems approach for fruit fly control; reviewing phytosanitary legislation and strengthen phytosanitary regulatory controls for *B. invadens*; strengthening institutional frameworks for SPS control and management; strengthening public-private partnerships in fruit fly control programmes; directing technical assistance towards strengthening SPS framework conditions, conformity assessment infrastructure and SPS compliance services; adopting area-wide strategies using Regional SPS frameworks; and engaging in active negotiations with the importing country on equivalence of measures taken to address the problem.

Recommendations on Strengthening National SPS Institutions

There is much scope to improve Kenya's SPS institutional environment and arrangements for effective implementation of the SPS Agreement and protecting health and life. This requires setting apart national annual budgetary allocation from government, but also a deliberate effort to attract technical assistance from development partners. Some of these choices can be implemented only with an enabling institutional environment through updating of SPS relevant legislation. While investing in the national SPS compliance system the following choices could be considered jointly and progressively:

1. Develop and/revise SPS policies and strategies: Mainstream SPS policies in existing national sectoral policies for easier implementation.
2. Setting of Regulatory Standards: There is need to review the legal framework to give public sector SPS entities flexibility and framework for development of SPS regulatory measures. In particular, the review of SPS regulations and procedures should aim at facilitating safe agro-food trade, including mechanisms for supporting the private sector,

inspection and verification of products, as well as certification in line with established regulatory norms.

3. Compliance with Regulatory Norms: In order to ensure compliance with regulatory requirements that fall within their mandate, the public sector SPS organizations should carry out a program of inspection and verification that ensures that the regulatory standards are complied with by all products and processes within its mandate.

4. Harmonization of Standards: Although harmonization of regional SPS standards has been largely achieved through the EAC and COMESA SPS frameworks, the public sector SPS entities should participate actively at international level in the meetings and activities of WTO SPS committee, Codex, OIE and IPPC, in order to ensure that national SPS regulatory standards conform to international SPS standards, guidelines and recommendations.

5. Transparency: The national SPS institutions should notify WTO totally about new or revised national SPS regulations even if they comply with international standards, guidelines and recommendations. In particular, the WTO has so far not been notified on national food safety regulations and changes in SPS entities in Kenya. In addition, the public sector entities should constantly inform users about new and changes in existing national SPS regulations and in the SPS regulations of other countries where trade exchange exists.

6. Technical Cooperation and Special and Differential Treatment: The public sector should establish a permanent consultation mechanism to systematically identify and prioritize relevant technical assistance and special and differential treatment and negotiate them with development and trading partners.

7. Information Sharing and Communication: The public sector should periodically publish the results of SPS activities and programmes, as well as new international standards. In this regard it is necessary to strengthen the WTO Reference Centre (RC), SPS National Enquiry Points (NEPs) and National Notification Authority (NNA) through technical and human resource capacity development.

8. Strengthen Risk Assessment Capability: A starting point would be to compile and maintain sources of information or access to information necessary for hazard identification then establish systems for actively seeking and maintaining relevant data and information for risk assessment and use this information in the surveillance systems.

Recommendations for Strengthening Regional SPS Frameworks

1. Harmonisation of SPS Policy Frameworks: The EAC should review the existing policy frameworks to address specific SPS related constraints in the region. Harmonising the agriculture, health and international trade policies at regional level has become more urgent than before. Such a policy should also harmonise food safety, animal health and plant health governance at national level in line with regional and international standards. SPS policies should allow for multi-sectoral approaches and be mainstreamed into sectoral policies which can be easily realised than a broader SPS policy.

2. Enactment of Relevant SPS Legislation: There is need to ensure SPS legal frameworks in EAC countries provide the concerned agencies with a clear mandate and authority to prevent SPS related risks. This can be achieved through enacting a regional SPS Act that will require partner states to review their national SPS legal and regulatory environment which is currently characterized by fragmented legislation.

3. Harmonisation of SPS Measures: Although harmonization of regional SPS standards has been largely achieved through the EAC and COMESA SPS frameworks, EAC countries SPS entities should participate actively at international level in the meetings and activities of WTO SPS committee, Codex, OIE and IPPC in order to ensure that national SPS regulatory standards are harmonized and conform to international SPS standards, guidelines and recommendations.

Recommendations on upgrading export-oriented value chains

1. *There is need to conduct a detailed analysis of the long-standing SPS concerns of trading partners:* This will help to understand the root causes and status of the concerns and develop strategic interventions that will lift the avocado bans and open up new markets. Such a root cause analysis will also help point out at areas where policy development and review of existing legal and regulatory structures is needed. It will also point out areas along the value chain where interventions should be directed.

2. *There is need to upgrade the avocado value chain in Kenya in order to address existing SPS related constraints:* Further upgrading will help Kenya to address SPS concerns being raised by trading partners and open up new high-value markets in industrialized countries. It is necessary to develop a detailed industry guideline that addresses both phytosanitary and food safety concerns along the avocado value chain. It will also help to improve productivity along the value chain and earn more income especially for smallholder producers whose livelihoods depend on the commodity.

3. *Investments are required both in the private and public sectors in order to support compliance with agro-food standards required for accessing markets:* Kenya has already

invested substantially in supporting the competitiveness of horticultural value chains with export potential. There is, however, urgent need to invest further in export-oriented support services related to conformity of products to market requirements in order to expand trade and earn higher returns.

Recommendations on Integrating Smallholders in Global Value chains

1. Promote avocado productivity at primary production level by establishing and strengthening producer groups. These will serve as entry points by government and private sector to introduce efficient production systems, conduct training and govern production activities along the avocado value chain. Strong producer groups can also serve as training focal points, marketing organisations and implementation of SPS requirements and for self-regulation.
2. SPS awareness programmes are a necessary component of a wider SPS control strategy, but are likely to produce negative effects that exclude smallholders from export-oriented production. SPS awareness should be accompanied by tools that help smallholder producers implement SPS requirements. The implementations could be done by Government extension workers or buyers of farm produce.
3. Pest surveillance: Considering the rising importance of SPS issues in trade, the government needs to enhance pest surveillance activities not only in regions producing crop for exports, but across the country to address establishment and spread of pests of trade importance.

4. The government should implement integrated measures in a systems approach to address SPS concerns along the avocado value chain, in particular among smallholder producers. The government should also strengthen surveillance activities such as fruit-fly trapping and collection of infested fruits for sampling survey in order to designate pest free zones or area of low pest prevalence for fruit-flies.

5. There is an urgent need to support smallholders to implement and comply with SPS regulations. Smallholder producers are not opposed to regulation, but any controls should be supported by implementation tools such as production protocols and regular training and extension visits.

6. There is need to strengthen SPS institutions for effective SPS controls and service delivery. This will ensure that adequate SPS regulatory controls and services are developed to support safe avocado trade. Institutional arrangements for SPS institutions should follow a value chain approach to addressing SPS matters with a coordination mechanism.

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APPENDICES

Appendix 1: Major Destinations of Kenya Avocado Exports in 2010

DESTINATION	QUANTITY (KGS)	VALUE (KES)
FRANCE	8,714,211	734,518,207
UNITED ARAB EMIRATES	3,409,083	301,838,339
NETHERLANDS	3,320,276	195,026,419
SPAIN	1,934,584	142,258,606
UNITED KINGDOM	1,340,039	163,270,570
SAUDI ARABIA	704,698	98,150,173
DENMARK	262,320	21,221,850
LITHUANIA	149,760	14,042,949
EGYPT	108,790	14,348,555
QATAR	73,061	11,755,031
KUWAIT	68,187	12,321,128
BAHRAIN	25,126	4,657,741
BELGIUM	22,080	1,728,518
CHINA	22,080	2,006,946
OTHERS	29,126	4,639,135
TOTALS	20,183,421	1,721,784,197

Source: (HCDA, 2010a)

Appendix 2: Providers of SPS Standards compliance Services along Avocado Value Chain

Value Chain Step	Service Providers		Roles in SPS control and management
Input Supply	Pest Control Products Board (PCPB)		<ul style="list-style-type: none"> • Registration of Pest Control Products • Regulation of importation, distribution, storage, use and disposal of plant protection products
	Kenya Plant Health Inspectorate Service (KEPHIS)		<ul style="list-style-type: none"> • Inspection of propagation material (seedlings) for disease and pest freedom • Issuance of phytosanitary certificates for propagation materials
	Horticultural Crops Directorate (HCD)		<ul style="list-style-type: none"> • Licensing of avocado nurseries for seedlings
		Agrochemicals Association of Kenya (AAK)	<ul style="list-style-type: none"> • Assisting members to comply with PCPB regulations • Training producers on safe and effective use of pesticides
		Stockists of inputs such as fertilizers, plant protection products	<ul style="list-style-type: none"> • Stocking agro-inputs while ensuring legal and safety requirements are met
Primary Production		Smallholder producers; Large farms	<ul style="list-style-type: none"> • Observe general good agricultural practices in general • Ensure use of only certified planting material • Use of safe irrigation water • Rational use of pesticides, observance of waiting periods • Observance of hygiene • Implementation of Integrated pest management techniques • Collaboration with SPS related institutions in government and private sector
	Ministry of Agriculture		<ul style="list-style-type: none"> • Agricultural policy supportive of SPS controls • Training and extension services
	Horticultural Crops Directorate (HCD)		<ul style="list-style-type: none"> • Training of producers on avocado good husbandry practices • Oversight of contracts between producers and buyers of avocado
	KALRO, KEPHIS, University laboratories	Private pest diagnostic Laboratories	<ul style="list-style-type: none"> • Plant disease and pest diagnostics • Soil and water pesticide analysis to ensure no risk of contamination of produce.
	KEPHIS		<ul style="list-style-type: none"> • Pest surveillance and identification of pests • Development of phytosanitary protocol to guide primary production at farm level

Value Chain Step	Service Providers		Roles in SPS control and management
			•
		Lead Firms; Agro-input distributors	• Technical advice on Good agricultural Practices
Assemblers		Producer Groups; Produce Marketing Organizations (PMOs)	• Consolidating produce from bona-fide producers for traceability • Provision of produce handling facilities
		Brokers	• Provision of inputs • Provision of transportation facilities
		Lead firms	• Technical advice to smallholder producers • Record keeping and traceability • Assistance in implementation of good agricultural practices • Assistance in implementation of food safety systems • Assistance in compliance with legal requirements
Domestic Fresh Produce Markets	Horticultural Crops Directorate (HCD)		• Regulation on source and integrity of produce
	Ministry of Health		• Development of Public Health Policies • Enforcement of hygiene at the market place through municipal personnel
	Ministry of Local Authorities		• Establishment of business facilities that allow for implementation of hygiene • Enforcement of hygiene standards
		Wholesalers, domestic Supermarkets, Restaurants	• Procurement of produce from primary sources either directly or through middlemen • Maintenance of market hygiene • Sale of clean and hygienic products
Processing		Processors	• Observance of traceability • Procurement of safe avocado produce for processing • Processing of avocado products through safe process technologies • Implementation of hygiene and food safety management systems • Sale of safe finished products
	Ministry of Health		• Development of nutrition and public health policies • Surveillance of factory plants through the public health officers.

Value Chain Step	Service Providers		Roles in SPS control and management
	Kenya Bureau of Standards (KEBS)		<ul style="list-style-type: none"> • Development of relevant product and process standards
International Trading		Exporters	<ul style="list-style-type: none"> • Procurement of safe supplies • Handling and value addition in hygienic conditions • Export of safe processed products that comply with food safety requirements • Compliance with SPS standards as requirement by the international markets • Training own operators to comply with legal, safety and quality requirements
		Fresh Produce Exporters Association of Kenya (FPEAK)	<ul style="list-style-type: none"> • Bring together exporters to discuss ways and means of compliance with SPS standards • Lobbying with government on policy and regulations • Technical advice implementation of SPS standards
		Ministry of Trade	<ul style="list-style-type: none"> • Registration of Traders/businesses • Raising SPS notifications to trading partners
		Horticultural Crops Directorate (HCD)	<ul style="list-style-type: none"> • Issuance of export license • Acquisition of export market access information • Training for new exporters • Observance of quality aspects including packaging and labelling requirements
		Kenya Plant Health Inspectorate Service (KEPHIS)	<ul style="list-style-type: none"> • Inspection of produce • Issuance of phytosanitary certificates in accordance with market requirements • National Enquiry Point for phytosanitary issues
		Kenya Bureau of Standards (KEBS)	<ul style="list-style-type: none"> • Development of Food Standards • National Codex Focal point • National Enquiry Point for Standards and Technical Regulations
		Ministry of Health	<ul style="list-style-type: none"> • Development of Public Health Policies • Issuance of health certificates for products going for exports • National Enquiry Point on Food Safety • Conducting inspections and tests to ascertain food safety
End-Users	Ministry of Health		<ul style="list-style-type: none"> • End Users in Kenya are protected under public health regulations. Those outside the country are protected by implementation of the SPS agreement and meeting export conditions of importing countries

Appendix 3: Comparison of Margins for Situation with and without SPS Controls by Chain Actors

Actors	Activities	Situation without Control Measures (KES/Tonne)	Situation with Control Measures (KES/Tonne)
Assembly Traders	Purchase from Farmers	10,000.00	25,000.00
	Transport Costs	3,000.00	3,000.00
	Packing	800.00	1,500.00
	Handling	200.00	200.00
	Grading	200.00	300.00
	Market Access fees	1,000.00	-
	SPS Control Measure 1- Clean Grading Sheds	-	1,000.00
	SPS Control Measure 2- Hygiene during Handling	-	1,000.00
	Opportunity Cost (3%)	156.00	210.00
	Total Marketing Costs	5,356.00	7,210.00
	Selling Price	18,000.00	35,000.00
Gross Margin	8,000.00	10,000.00	
Net Margin	2,644.00	2,790.00	
Wholesalers	Procurement from assemblers	18,000.00	25,000.00
	Transport Costs	2,000.00	2,000.00
	Packing	500.00	500.00
	Handling	500.00	500.00
	Grading	500.00	500.00
	Market Fees	1,000.00	1,000.00
	Security and other market Services	250.00	250.00
	SPS Control Measures- Hygiene	300.00	300.00
	Opportunity Cost (3%)	151.50	151.50
	Total Marketing Costs	5,201.50	5,201.50
	Selling Price	30,000.00	30,000.00
Gross Margin	12,000.00	5,000.00	
Net Margin			

Actors	Activities	Situation without Control Measures (KES/Tonne)	Situation with Control Measures (KES/Tonne)
		6,798.50	(201.50)
Exporters	Procurement from assemblers	30,000.00	25,000.00
	Transport Costs	25,000.00	30,000.00
	Grading	1,500.00	1,000.00
	Handling	500.00	1,000.00
	Packing	1,000.00	1,000.00
	Market Fees	25,000.00	30,000.00
	Security and other market Services	10,000.00	10,000.00
	SPS Control Measures- Hygiene	2,000.00	2,000.00
	Opportunity Cost (3%)	1,950.00	2,250.00
	Total Marketing Costs	66,950.00	77,250.00
	Selling Price	120,000.00	130,000.00
	Gross Margin	90,000.00	105,000.00
	Net Margin	23,050.00	27,750.00

Appendix 4: Strengths and Weaknesses of Kenya's Food Control System

Core Competencies	Basic standard	Strengths	Weaknesses
Setting of Food Safety Regulations	Capability and authority to formulate and recommend for adoption national legislation, and set food safety regulations for processes and products covered by their mandates, and the coverage of such regulations.	The national food safety services, based on national legislation, have the flexibility and <i>legal framework</i> necessary to develop legislation and set food safety regulations.	The national food safety service has not updated or <i>set food safety regulations</i> , taking into consideration the opinions of their users and international norms, guidelines and recommendations.
Compliance with Food Safety Regulations	Capability and authority to ensure that stakeholders are in compliance with national food safety regulations.	Food safety legislation gives the national food safety agencies authority to regulate and monitor compliance by all food producers and processors.	Although food legislation exists, some is outmoded. The authorities are also constrained in regulation and monitoring compliance due to inadequate technical and financial capabilities
Harmonization of Food Safety Measures	Capability and authority to be active in harmonization, to ensure that national regulations are consistent with international norms, guidelines and recommendations	Kenya has participated in the EAC, COMESA and Codex international food standards harmonization programmes. Kenya has a Codex contact point at KEBS	Inadequate consultation with stakeholders at national level before international harmonization meetings
Food Safety Certification	Capability and authority to certify products and processes in accordance with national food safety regulations and relevant international norms, guidelines and recommendations.	KEBS certifies manufactured food products; Ministry of Public Health issues sanitary/health certificate for products traded across the borders; Ministry of Fisheries Development certify fish and fisheries products	Existing capacity in the private sector has not been adequately utilized, especially for food inspections/auditing
Equivalency and Other Sanitary Agreements	Capability and authority to negotiate, implement and maintain equivalency and other food safety-related agreements with other countries regarding regulations, norms and	Food safety equivalency standards and agreements have been signed in the framework of the EAC, COMESA and trade with the EU;	Kenya has not established equivalency requirements with specific trading partners, which could lead to non-recognition of conformity assessment procedures by

	processes under their mandates.		some importing countries
Traceability	The food control system has capability to ensure, across the entire food chain, that they can track the history, location, and distribution of any food and related products covered by their mandates.	Traceability is a legal requirement for all manufactured food products.	Not all food products are currently traceable, especially fresh farm produce destined to domestic markets
Transparency	Capability and authority to notify the national SPS authority of national regulations, and to notify the INFOSAN network of any food safety emergency having actual or potential international significance, in accordance with established procedures	The Division of Food Safety and Quality of the MOH is the designated INFOSAN focal point and NEP for food safety;	The national food safety services do not notify the WTO about changes in their food safety regulations.

Source: Author

Appendix 5: Strengths and weaknesses of Animal Health Control Systems in Kenya

Core Competencies	Basic standard on Institutional Arrangements	Strengths	Weaknesses
Establishment of Animal Health Regulations	Capability and authority to formulate and recommend for approval national animal health legislation and to establish regulations for processes and products under its mandate, as well as the scope of such regulations	DVS prepares and submits bills of law for approval and drafts animal health regulations, taking into account the opinions of stakeholders and international standards, guidelines and recommendations. The laws and regulations authorize DVS to regulate and oversee compliance on for all animal producers and processors of animal products	
Compliance with Animal Health Regulations	Capability and authority to ensure that stakeholders are in compliance with the relevant animal health regulations.	DVS implements supervision programs consisting of inspection and verification of compliance with relevant regulations relating to <i>all</i> products and	There are administrative and financial capacity challenges in enforcement of compliance with

		processes under its mandate.	animal health regulations. Except for OIE evaluations, DVS does not regularly audit its inspection programmes
Harmonization	Capability and authority to actively pursue harmonization processes and to ensure that national regulations are consistent with international standards, guidelines and recommendations.	The DVS is active in <i>examining and discussing</i> inclusions and reviews of international animal health standards, guidelines and recommendations.	The DVS does not <i>actively and regularly pursue</i> changes in national regulations that will ultimately promote national change
Certification	The capability and authority to certify the services, products and processes in accordance with national animal health regulations and with international standards, guidelines and recommendations.	The DVS implements a certification program for specific products, services or processes.	The process of developing and implementing certification programmes of new products and processes is slow and cumbersome.
Equivalency Agreements	Authority and capability to negotiate, implement and maintain equivalence agreements and other types of agreements related to animal health with other countries.	The DVS <i>negotiates and approves</i> equivalence agreements and other types of sanitary agreements with other countries.	Sanitary agreements with other countries for new products and processes have not been drafted.
Traceability	The capability and authority to trace the history, location and distribution of animals and animal products	The DVS can trace some animals or their products at some <i>specific points</i> of the agrifood chain.	DVS does not have adequate procedures in place to identify and trace some animal species or their <i>selected</i> products along the corresponding agrifood chain.
Transparency	The capability and authority to notify the national health authority, the WTO, the OIE and trading partners, of national regulations and all emergencies with actual or potential international importance, in	The DVS notifies the WTO SPS Committee and the OIE of relevant changes in its regulations, and notifies the OIE of its sanitary status, in full compliance with the notification procedures established by those bodies.	Stakeholders not adequately informed about changes in national regulations and of Kenya's sanitary status, and the importance of maintaining a policy of transparency.

	accordance with established procedures.		
Regionalization	Capability and authority to establish and maintain regions, zones or compartments that are disease-free or with a low prevalence of animal diseases, in accordance with OIE criteria.	The DVS has established procedures for <i>defining</i> areas suitable for regionalization, zoning or compartmentalization and for determining the health status of <i>selected</i> animals or animal products.	The DVS has not implemented measures and controls that enable it to <i>establish</i> disease-free regions, zones or compartments for <i>selected</i> animals or animal products.

Source: Author Compilation

Appendix 6: Strengths and Weaknesses of the Plant Health Control System in Kenya

Core Competencies	Basic standard on Institutional Arrangements	Strengths	Weaknesses
Compliance with Regulatory Norms	The NPPO has capability and authority to ensure that users are in compliance with the regulatory norms covered under its mandate.	The NPPO implements a compliance programme consisting of inspection and verification of regulatory norms for <i>selected</i> products and processes, and, if necessary, <i>imposes appropriate penalties</i> in instances of non-compliance.	NPPO has not implemented compliance programme for all products; NPPO does not carry out audits of its inspection and verification compliance programmes
Formulation of Regulatory Norms	The NPO has capability and authority to formulate and adopt regulatory norms for processes and products covered under its mandate	The NPPO has the flexibility and <i>legal framework</i> necessary in order to formulate and adopt regulatory norms.	The NPPO has not <i>formulated and adopted adequate</i> regulatory norms, applying procedures that take into consideration the opinions of its users.
Harmonization	The capability and authority of the NPPO to be active in harmonization and ensure that the national regulations covered under its mandate are in conformity with relevant international standards, guidelines and recommendations.	The NPPO monitors the establishment of new international standards, guidelines and recommendations and periodically <i>reviews</i> national regulations with the aim of <i>harmonizing</i> them as appropriate with international standards, guidelines and recommendations.	NPPO has not been active at international level at formulation of new international standards, guidelines and recommendations
Certification	The NPPO has capability and authority to certify products, services and processes covered under its mandate and in accordance with the national regulatory norms and international standards, guidelines	The NPPO <i>carries out</i> certification programs for <i>selected</i> products, services or processes.	The NPPO does not have certification as necessary for all relevant products and does not carry out audits of its certification programs in order to maintain confidence in its system.

	and recommendations.		
Equivalency Agreements	The NPPO has capability and authority to negotiate, implement, and maintain equivalency agreements with other countries on phytosanitary norms and processes under its mandate	The NPPO has the authority to <i>negotiate and approve</i> equivalency agreements with other countries.	NPPO has not <i>evaluated and proposed</i> equivalency agreements with other countries on selected products and processes;
Traceability	The capability and authority of the NPPO to track the history, location and distribution of plants and their related products covered under its mandate.	The NPPO can inspect and document the phytosanitary status at <i>specific points</i> across the agri-food chain for <i>selected</i> plants and their related products.	The NPPO, along with the other relevant State institutions and its users, does not have coordinated procedures in place that can track plants and related products across the <i>entire</i> agri-food chain;
Transparency	The NPPO has capability and authority to notify the WTO/SPS and the IPPC of its national regulations and phytosanitary status, in accordance with the procedures established by these organizations.	The NPPO <i>partially</i> notifies the WTO/SPS and the IPPC of its regulatory norms, and the IPPC of its phytosanitary status.	The NPPO notifies the WTO/SPS and the IPPC of its regulatory norms, and phytosanitary status, but not in <i>full compliance</i> with the criteria established by these organizations.
Regionalization	The NPPO has capability and authority to establish and maintain pest-free areas or areas of low pest prevalence, in accordance to the criteria established by the WTO/SPS and the IPPC.	The NPPO has not established pest-free areas or areas of low pest prevalence.	The NPPO <i>can identify areas</i> to be regionalized, and establish the <i>current phytosanitary status</i> of selected plants and their related products originating from these prescribed areas.

Source: Author Compilation

Appendix 7: Research Activity Schedule

	Core Activities	Time Schedule	Methods/ tools	Output
	Definition of goals and objectives of the survey	June 2011	Conceptualization	Clear goal and objectives of study
	Consolidation of Literature	July 2011	Reading books and journals	Compilation of existing literature
	Designing and developing survey plan	August 2011	Design using reference manuals	Detailed Survey plan
	Designing and developing questionnaire	August 2011	Thinking through the production and marketing channels.	Simplified Questionnaire
	Recruitment, Induction and training of enumerators/ research assistants	September 2011	Hands-on training and discussions	Research assistants recruited & trained
	Pilot/ test Survey	September 2011	Field visit to administer questionnaire	Weaknesses in the survey plan identified
	Finalizing of research instruments (revision of questionnaire if necessary)	October 2011	Editing of survey plan	Revised survey plan and questionnaire
	Main Field data collection (3months)	November 2011- January 2012	Send out enumerators to administer questionnaire	Raw data from participants/ subjects of study
	Data entry and Organization	February-March 2012	Use of MS access or Spreadsheet	Data organized appropriately
	Data analysis	April-May 2012	Use of relevant statistical software	Data analyzed using appropriate methods
	Report writing	June 2012	Compilation of findings	Research Report

Appendix 8: Research Budget Estimate

	Core Activities	Items/ Particulars	Cost in Kshs.	Cost in USD @ Kshs100
1	Definition of goals and objectives of the survey			
2	Designing and developing survey plan	Typing and photocopying of survey plan	8,000	80
3	Designing and developing questionnaire	Typing and photocopy of questionnaires for pilot survey	10,000	100
4	Recruitment, Induction and training of enumerators/ research assistants	Transport for researcher and 4 assistants for 2 days @ 3500 = kshs 7000 Training of enumerators= KES20000	27,000	270
5	Pilot Survey	Transport for researcher and 4 assistants for 3 days @ 3500 = kshs 10500	10,500	105
6	Finalizing of research instruments (revision of questionnaire if necessary)	Photocopy of questionnaires 600x12pagesx5	30,000	300
7	Main Field data collection (8weeks)	Travel for researcher and 4 assistants- 4000x7day/ week for 8 weeks = 224000 Accommodation and subsistence for researcher and 4 assistants @ Kshs 2000 per day for 8 weeks = 560000	784,000	7840
8	Data organization	1 research assistant for 4 weeks @ 2000 per day	50,000	500
9	Data Analysis	Software and technical advice	200000	2000
10	Report writing	Typing, printing and binding of 3 reports @2000	6,000	60
11	Technical support	Consultancy	85,500	700
	Total		1,195,500	11,955

Total Budget in GBP = £ 7,492

Appendix 9: Questionnaire

EFFECTIVENESS OF PHYTOSANITARY CONTROLS IN KENYA

An Assessment of Perceptions by Smallholder Producers

Avocado Smallholders Questionnaire, Kenya

1. QUESTIONNAIRE IDENTIFICATION (to be filled in by enumerator prior to interview)	
Date of interview (dd/mm/yyyy)	___/___/____
Questionnaire number	[_____]
Enumerator code	[__]
Sex of interviewee (1=Male, 2=Female)	[__]

2. QUALITY CONTROL	Supervisor name	Date (dd/mm/yyyy)	Signature
Was information collected correctly?		___/___/___ ____	
Has information been inputted correctly?		___/___/___ ____	

Comments

SECTION A: GENERAL INFORMATION

	ITEM	RESPONSE
1	Name of Producer	
2	Gender (Male or Female)	
3	Contact (Mobile phone)	
4	County or Province	
5	District	
6	Division	
7	Village	
8	Registered Out-grower or Exporter	YES [___] NO [___]

		Name of Exporter:
9	Registered Member of Producer Group	YES [___] NO [___] Name of Producer Group:
10	Size of the farm (acres)	
11	Number of Avocado Trees on the farm	
12	Avocado Varieties grown 1. Hass 2. Fuerte 3. Puebla 4. Pinkerton 5. Other	[___] If other specify _____
13	What in your view is the main Avocado Production Challenge? 1. Fruit-fly 2. Other pests and diseases 3. Cost of inputs 4. Pre-farm gate standards 5. Post harvest losses	[___] If other (specify): _____
14	Which is the main market outlet for your avocado? 1. Selling to Brokers/ Middlemen, 2. Selling to wholesale markets 3. Selling directly to Processors, 4. Selling directly to Fresh Produce Exporter 5. Retailing directly at the marketplace	[___] If other (specify): _____

SECTION B: PHYTOSANITARY AWARENESS PROGRAMME

Has information been conveyed to you about South Africa's import ban on avocado from Kenya?

<input type="checkbox"/>	NO	<input type="checkbox"/>
<input type="checkbox"/>	YES	

If your answer to Q1 above is YES: How did you learn about the about the avocado export ban?

<input type="checkbox"/>	Through buyers of produce	<input type="checkbox"/>
<input type="checkbox"/>	Through government extension personnel	
<input type="checkbox"/>	Through electronic and print media e.g. newspapers, radio, television	
<input type="checkbox"/>	Public meetings/forums	

Please indicate by marking X for each of the fruit fly awareness programmes whether it is true or false
0= False 1= True 8= I don't Know

Item	False 0	True 1	I don't Know 8
Signs have been posted in avocado growing areas on fruit flies			
Leaflets or brochures with information on the fruit flies are distributed			
Publications (e.g. print, electronic media) on fruit flies are available to producers			
Producer is aware of other hosts of fruit fly besides avocado			
Producers participate in fruit-fly control programmes (e.g. by providing security of the fruit-fly traps)			
Producer is not aware of any fruit-fly control programme			

SECTION C: PEST SURVEILLANCE

C Here below are a range of pest surveillance activities government is conducting in order to address the fruitfly
 1 problem. How would you rate the occurrence of the following government-led pest surveillance activities in your region in the last 2 years?

0= There are none at all; 1= Not Adequate; 2= Adequate; 3= More than adequate; 13= I don't know

Surveillance Activities	Please circle a number				
Government conducts Surveillance through fruit-fly trapping	0	1	2	3	13
Government conducts Surveillance through fruit sampling	0	1	2	3	13
Trained expert (entomologist) assists producer to identify fruit flies and other pests on the farm	0	1	2	3	13
Person with defined authority and responsibility from government supervises producers to ensure the control systems are implemented appropriately	0	1	2	3	13

C **Have you ever participated in any pest surveillance activities organized by Government?**

2

<input type="checkbox"/>	0	NO	<input type="checkbox"/>
--------------------------	---	----	--------------------------

1 YES

C 3 If Your answer to Q1 above is YES: How do you participate in pest surveillance?

1	Government has placed fruit-fly traps in my avocado field	<input type="text"/>
2	Government samples avocado fruit from my farm	
3	I carry out scouting activities for fruit-flies on my farm	
4	I participate jointly with other farmers to report any pest problems on our farms	

SECTION D: PEST MANAGEMENT

D1 In order to address the fruit-fly problem and have the avocado export ban lifted producers should adopt and implement appropriate pest management strategies. Please indicate whether the support you receive is adequate to implement the following strategies on your farm?

0= No Support; 1 Inadequate, 2= Adequate; 3=More than Adequate 8= I don't Know

	Pest management strategy	0	1	2	3	8
A	I implement cultural control strategies for pest management on the farm					
B	I implement physical control strategies for pest management on the farm					
C	I implement biological control strategies for pest management on the farm					
D	I implement chemical control strategies for pest management on the farm					

D 2 Please indicate in the corresponding box with an X which of the following cultural control measures you apply to prevent fruit flies on your farm

A	Stripping and destruction of mature and fallen fruit	
B	Early harvesting	
C	Discouraging intercropping with fruit-fly host plants	
D	Pruning before the fruiting period	
E	Use of perimeter trap hosts	

D 3 Which of the following physical control measures are applied to reduce fruit fly populations to or below the specified level of low pest prevalence?

A	Fruits are placed in bags (fruit bagging)	
B	Fruit-fly host material is disposed of in appropriate disposal bins	
C	Affected fruit is collected and destroyed	
D	Other (specify)	

D 4 Which of the following biological control measures do you apply to reduce fruit fly populations to or below the specified level of low pest prevalence?

A	use of sterile insect technique (SIT)	
B	Use of natural enemies	
C	Other (specify)	

D 5 Which of the following chemical control measures are applied to reduce fruitfly populations to or below the specified level of low pest prevalence?

A	Selective Insecticide Bait	
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B	Aerial and ground spraying	
C	Bait stations	
D	Male annihilation technique	
E	Other (specify).....	

D 6 What post-harvest pest control techniques are employed on-farm?

A	Avocado fruit is harvested and sold only when it is still hard/ firm	
B	Ripe fruit is kept in bags to avoid pest populations	
C	There are procedures for monitoring and correcting pest populations in the packing and storage areas	
D	There is visual evidence that pest monitoring/ inspections and correcting processes are effective	
E	Post-harvest treatments such as waxes, biocides and plant protection products are applied after harvest	

SECTION E: PHYTOSANITARY REGULATIONS

E 1 Here are some regulations that government might enforce to eliminate fruit-flies and other pests that affect trade. Please mark (X) to show whether you are in favour of it or against it.

1. *Strongly in favour of*
2. *In favour of*
3. *Neither in favour nor against*
4. *Against*
5. *Strongly against*

		1	2	3	4	5
A	Regulating on-farm activities					
B	Regulating providers of farm inputs					
C	Regulating providers of information and advisory services					
D	Controlling movement of produce through movement permits					
E	Regulating activities of middlemen and other buyers of produce					

E 2 If government was to choose regulating from among the various options below, do you think it will achieve highest fruit-fly control?

1. *Agree*
2. *Neither in Agree nor Disagree*
3. *Disagree*

		1	2	3
A	Regulating on-farm activities			
B	Regulating providers of farm inputs			
C	Regulating providers of information and advisory services			
D	Controlling movement of produce through movement permits			
E	Regulating activities of middlemen and other buyers of produce			

E 3 Listed below are various actions the government could take to enforce plant health regulations in order to address the fruit-fly problem. Please indicate whether you would like to see more or less government involvement for each area.

1. *Get involved more*
2. *Be involved the same as now*
3. *Get involved less*
4. *Not at all get involved*
8. *Can't choose*

		1	2	3	4	8
A	Get directly involved in enforcement and impose penalties for non-compliance of plant health procedures					
B	Create more awareness for producers about the fruit-fly problem and applicable regulations					
C	Provide guidelines to producer groups to regulate themselves.					
D	Work with buyers of produce to enforce regulations					
E	Initiate partnerships between all relevant institutions and stakeholders to address the fruit-fly pest problem					

E 4 If required by government for your farm to adopt the following on-farm regulatory measures for fruit-fly control, do you think it will be difficult for you to implement?

1= Not at all; 2= To some extend; 3= To a large extend; 8= I don't know

		1	2	3	8
A	Type of variety to be planted is controlled by government				
B	Only planting material from government certified nurseries are permitted for planting.				
C	Avocado production protocol or guidelines are provided to farmers				
D	Producers participate in training on pest management practices in avocado				
E	Producers participate in pest surveillance programmes through trapping and fruit sampling				
F	Only registered pesticides may be used on the farm				
G	Movement of harvested produce from the farm must be accompanied with movement permit from government				

SECTION F: PHYTOSANITARY INSTITUTIONS

F 1 Listed below are some essential plant health support services you should receive from different institutions. Beside each of the services presented below, please indicate whether you receive the services by marking:

1= Strongly Agree; 2= Agree; 3=Disagree; 4= Strongly Disagree; 8= Undecided

		1	2	3	4	13
A	Information about pests and diseases affecting my crops, including avocado					
B	Pest Surveillance activities (through use of traps or collection of samples)					
C	Training in pest management and other agronomic activities of avocado					
D	Visits to the farm and advice on pest management on avocado					
E	Harvested produce is inspected before being sold to buyers					

F 2 The following government institutions have a role in plant health along the avocado production and marketing chain. To what extent have you interacted with them over the last 2 years on avocado matters? (Mark appropriate box with X)

A	Ministry of Agriculture Extension Staff	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>
B	Horticultural Crops Directorate (HCD)	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>
C	Kenya Plant Health Inspectorate Service (KEPHIS)	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>
D	Kenya Agricultural and Livestock Research Organization (KALRO)	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>
E	Pest Control Products Board (PCPB)	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>
F	Other (specify).....	<i>Not at all</i>	<i>Once</i>	<i>2-4 times</i>	<i>More than 5 times</i>

Beside each of the services listed below, please indicate which government institution, in your view is better placed to provide support to farmers on plant health matters:

1. *Ministry of Agriculture Extension Personnel*
2. *Horticultural Crops Directorate (HCD)*
3. *Kenya Plant Health Inspectorate Service (KEPHIS)*
4. *Pest Control Products Board (PCPB)*
5. *Kenya Agricultural and Livestock Research Organization (KALRO)*

6. University (specify) _____
 8. Don't Know

A	Information about pests and diseases affecting my crops						
B	Conduct Pest Surveillance activities (through use of traps or collection of samples)						
C	Training on how to manage pests and diseases						
D	Visit my crop in the field and provide advise						
E	Inspect harvested produce for cleanliness from pests and diseases before selling						
F	Impose penalties for con-compliance to plant health procedures						

F 4 If government was to delegate some responsibilities to private institutions which one listed below would be best suited to deliver effective service? Please indicate against each service the corresponding number of the private institution

0= None; 1= Producer Organization; 2= Buyer company; 3= Pesticide companies; 4= Consultant; 8= Don't know

A	Information about pests and diseases affecting my crops						
B	Conduct Pest Surveillance activities (through use of traps or collection of samples)						
C	Training on how to manage pests and diseases						
D	Visit my crop in the field and provide advise						
E	Inspect harvested produce for cleanliness from pests and diseases before selling						
F	Impose penalties for con-compliance to plant health procedures						

F 5 How helpful are the following institutions to you on plant health matters for avocado? Kindly indicate by marking against each institution:

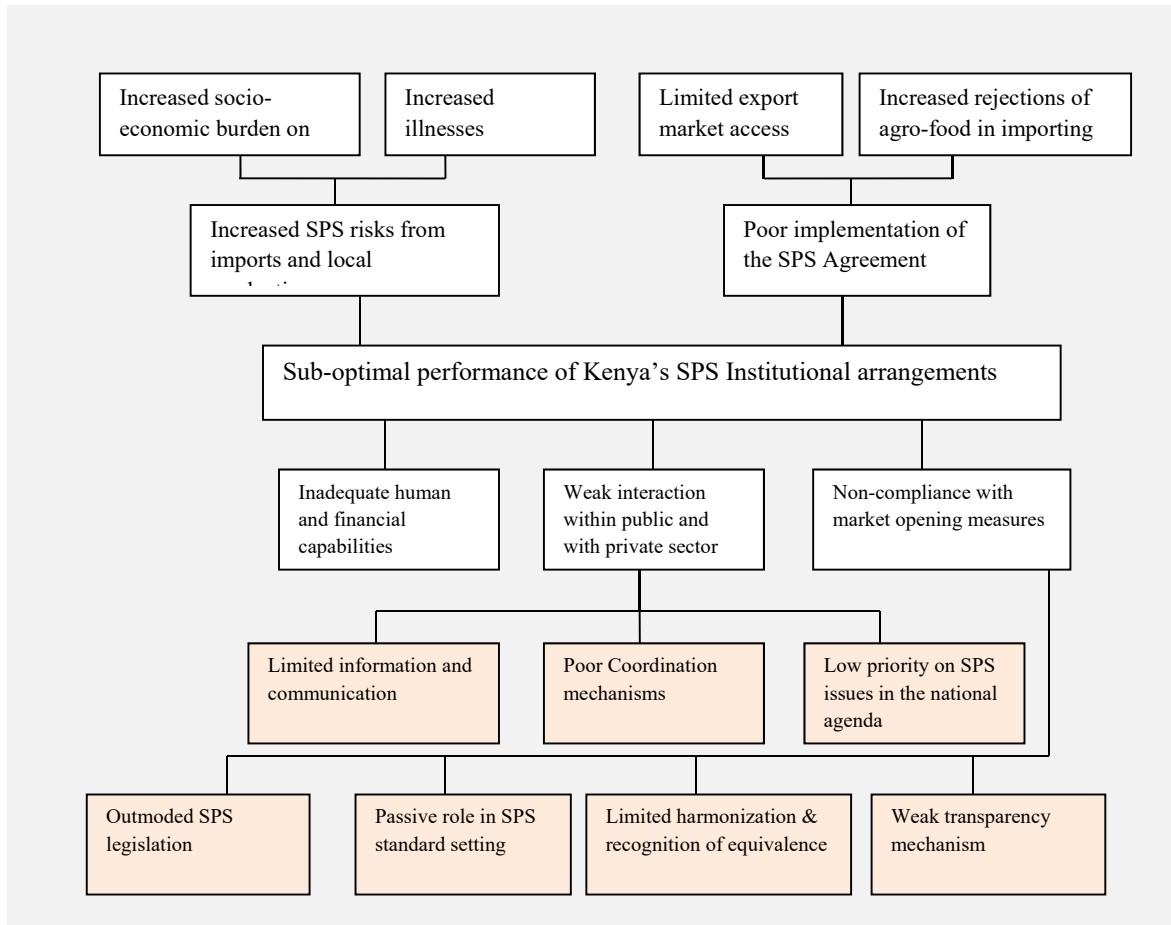
1= Not at all helpful; 2= Slightly helpful; 3= Helpful; 4= very helpful; 8= Don't Know

		1	2	3	4	8
A	Ministry of Agriculture					
B	Horticultural Crops Directorate (HCD)					
C	Kenya Plant Health Inspectorate Service (KEPHIS)					
D	Kenya Agricultural and Livestock Research Organization (KALRO)					
E	Pest Control Products Board (PCPB)					
F	Fresh Produce Exporters Association of Kenya (FPEAK)					
G	Pesticide Companies					
H	Private Consulting Company					
I	Producer Group					
G	Other (specify).....					

F 6 On the whole, which of the institutions listed Q5 above should take a leading role for the following functions in order to solve serious pest problems such as fruit-fly? Please fill in the corresponding letter (A-G) against the services below.

1	Creating awareness and training on fruit-fly and other pest problems	
2	Conducting surveillance activities on pests problems on the farm	
3	Regulating production and marketing activities of avocados to control pest problems	
4	Coordinating all actors in the avocado production and marketing chain	
5	Imposing sanctions on non-compliance with plant health procedures	

Appendix 10: Problem Tree for Analysis of SPS Institutional Challenge in Kenya



Appendix 11: Objective Tree for Analysis of SPS Institutional Challenges in Kenya

